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BEVERAGE AND FOOD CONTAINERS

A REPORT TO THE
PEOPLE OF MONTANA
AND THE
FORTY-SEVENTH LEGISLATURE

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STUDY COMMITTEE ON CONTAINERS

December 1979

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FINDINGS AND CONCLUSIONS

While rendering no decision on the cost effectiveness of a beverage container deposit law in Montana, the Study Committee on Containers recognizes the following based on the written and oral testimony presented to the Committee:

(1) that states with current deposit laws realize a reduction in roadside litter, even though a large discrepancy exists in the figures presented;

(2) that states with current deposit laws experience increases in the recycling rate, averaging around 90% by return rate;

(3) that recycling or refilling of beverage containers saves materials and energy.

SUMMARY OF RECOMMENDATIONS

The Study Committee on Containers recommends:

(1) that the people of Montana carefully study the issues and information presented in this report;

(2) that the Montana Legislature not adopt legislation that would impose a litter tax; and

(3) that the Forty-Seventh Legislature enact a bill that would prohibit the sale in Montana of metal beverage containers that have detachable openings.

SUMMARY

House Joint Resolution 56, passed by the 1979 Legislature, called for an interim study on the problems of the use , reuse, and disposal of beverage and food containers in Montana. The study was to be completed and a report issued prior to January 1, 1980. The Legislative Council assigned the study to the Interim Study Committee on Containers.

The Interim Study Committee on Containers met four times in 1979. The Committee held two meetings at which public input was encouraged. The third meeting of the Committee was devoted to developing the areas of agreement and disagreement between proponents and opponents of beverage container legislation.

The food container aspect of HJR 56 was given only slight attention by the Committee due to staff and time limitations, unavailability of Montana data, and lack of support by interested groups in pursuing this aspect of the study.

HOUSE JOINT RESOLUTION NO. 56

A JOINT RESOLUTION OF THE SENATE AND THE HOUSE OF REPRESENTATIVES OF THE STATE OF MONTANA REQUESTING ASSIGNMENT OF AN INTERIM COMMITTEE TO STUDY THE PROBLEM OF CONTROLLING THE USE, DISPOSAL, AND RECYCLING OF BEVERAGE AND FOOD CONTAINERS.

WHEREAS, there has been significant legislative interest in problems associated with the use, disposal, and recycling of food and beverage containers; and

WHEREAS, there is broad disagreement as to the proper role for the state to play in mitigating these problems; and

WHEREAS, a variety of programs have been initiated by the public and private sectors in neighboring states; and

WHEREAS, a study of the programs in these states by a legislative committee would assist in resolving disagreements over the nature of the problems and the possible effects to be expected from alternative solutions; and

WHEREAS, the existence of an interim legislative committee would facilitate communications among the several groups of persons in Montana with an interest in the problem.

NOW, THEREFORE, BE IT RESOLVED BY THE SENATE AND THE HOUSE OF REPRESENTATIVES OF THE STATE OF MONTANA:

(1) That an interim committee be assigned to conduct a study of the problems of controlling food and beverage containers.

(2) That the study include at least the following:

(a) an evaluation of the State Solid Waste Management Strategy Report (1976) prepared for the state of Montana by the Department of Health and Environmental Sciences;

(b) an evaluation of various methods for controlling food and beverage containers used in neighboring states, including Idaho's voluntary recycling program, Oregon's beverage container deposit law, Washington's model litter control program, and similar programs in Maine, Michigan, and Vermont;

(c) a determination of the most cost-effective means of encouraging the return for recycling or reuse of food or beverage containers; and

(d) discussions with the various Montana groups interested in these problems to identify areas of agreement and mutually acceptable solutions.

(3) That the committee prepare a final report of its findings and conclusions together with its recommendations for release to the public no later than January 1, 1980, and subsequent submission to the 47th Legislature.

(4) That the committee may, no later than October 1, 1980, prepare and release to the public an amended report as a supplement to its final report.

Approved April 18, 1979.

1. INTRODUCTION AND COMMITTEE DELIBERATIONS.

I

Problems associated with the use, recycling, and disposal of food and beverage containers have been vigorously debated in the Montana Legislature for nearly a decade. Numerous bills have been introduced since 1971 proposing legislative solutions to natural resource depletion, energy conservation, and litter collection and disposal problems associated with beverage and food containers. All these bills were modeled after similar ones enacted in Oregon and Washington.

The 1979 Session also saw introduction of a bill that required a refund be paid on all beverage containers offered for sale in the state. The House of Representatives killed this bill, HB 2, on third reading after the bill received a DO PASS recommendation from the Natural Resources Committee and an affirmative vote on Second Reading. House Joint Resolution 56, calling for a study of food and beverage container problems, was introduced in the House two weeks after the death of HB 2 and passed both houses of the Legislature. The Legislative Council selected HJR 56 as a study that would be conducted during the 1979-80 interim, and assigned eight members to serve on the Study Committee on Containers.

II

By the terms of HJR 56, the Study Committee on Containers' final report had to be released "to the public no later than January 1, 1980...." The Study Committee scheduled four meetings to meet the January 1 deadline.

From the beginning, the Committee recognized that its task was enormous. The Committee's time and resource limitations meant it could not duplicate, for example, Oregon's two year pre-"Bottle Bill" interim study on litter in which 48 public hearings were held and 223 hours of testimony were received. As a consequence of these constraints, the food container aspect of HJR 56 was given little consideration in the Committee's study since little Montana information on the subject was available, nor was much information on food containers presented by organizations involved in the study.

After an initial organizational meeting, the Study Committee examined an overview of beverage container information and received testimony in the form of position papers from interested groups.

The third and final meetings of the Study Committee were devoted to outlining the range of agreements and disagreements of beverage deposit legislation proponents and opponents and to preparing the Committee's final report.

III

The Study Committee on Containers decided from the beginning of its study that the Committee's role would be to provide a forum for both proponents and opponents of beverage container legislation to present their views on such legislation. The Committee therefore invited all interested parties to present position papers explaining their views on container issues and documenting evidence to support those views. Rebuttals to position papers were also encouraged. Chapter II of this report contains a summary of agreements and disagreements found in the position papers and rebuttals presented to the Committee.

It is important to note that the statements by proponents and opponents do not necessarily represent the views of individual Committee members or of the Committee itself. Rather, the views of both sides are presented in this report in an attempt to develop for the public the general framework of issues for further public discussion.

The Committee hopes that the material contained in this report will be useful to the people of Montana in developing their understanding of a proper public policy regarding beverage container legislation.

IV

The following summaries of major deposit law characteristics and Montana beverage container/litter legislative history are presented as general background information for the reader.

DEPOSIT STATES

Seven states have enacted beverage container deposit legislation: Connecticut, Iowa, Maine, Michigan, Oregon, Vermont, and Delaware.* Vermont passed the first such law in 1953 by banning the sale of beer and ale in non-returnable bottles. When the law came up for renewal in 1957, an attempt to broaden its provisions to include steel cans failed, and the law expired.

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* The Delaware law becomes effective 60 days after similar beverage container deposit legislation has been enacted in the states of Maryland and Pennsylvania. Pro-deposit legislation supporters are asking for a ruling from the Delaware Attorney General as to the constitutionality of such a provision in Delaware law.

In 1972 the Oregon Legislature passed a beverage container deposit law* which became effective October 1, 1973. Six other states have enacted minimum deposit legislation since the Oregon Law--two of those states by referendum.

The major characteristics of state beverage container deposit laws are presented on pages 7 and 8. Generally deposit laws require a minimum 5 or 10 cent refund be paid by a dealer (retailer) or distributor of beverages.

Beverages required to have deposits normally include malt beverages (including beer), mineral water, soda water, and carbonated soft drinks. Oregon and Michigan have provisions for a lower deposit on 'certified bottles' which is meant to encourage wider use of standardized bottles, thus reducing handling and sorting expenses. Five of the seven states provide for a handling fee to be paid by the distributor to the dealer to compensate for handling expenses. All of the states allow for establishment of redemption centers for centralizing container collection activity. Detachable can tops are banned in all seven of the states; three states do not allow plastic rings for binding together six-packs.

SELECTED MONTANA BEVERAGE PRICES

Presented on page 9 is an August 29, 1979 survey of prices at the Helena Safeway Store. The Safeway prices were representative of three other major supermarkets in Helena. Since the August survey, retail beer prices have gone up by about 6.5% at the Safeway store; soft drink prices have remained about the same.

At the Committee's request, a random survey was conducted of retail beverage prices in various Montana locations on November 16, 1979. The chart on page 10 presents the findings.

Several items can be noted about the Montana beverage prices cited in the above surveys. First, when like products are compared in the survey, returnable soft drink beverages carrying deposits cost less than non-returnables. This seems to hold true regardless of the region of the state surveyed. Secondly, both beer and soft drink prices vary considerably from store to store and town to town.

Thirdly, beer cannot be bought in Montana stores in returnable containers carrying deposits; therefore, no comparison in this area can be made.

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* Technically the Oregon law does not require a deposit. It requires, rather, that a refund be given to the purchaser of a beverage container.

MAJOR CHARACTERISTICS OF STATE BEVERAGE CONTAINER DEPOSIT LAWS
States with mandatory beverage container deposit laws

Characteristics	Connecticut	Iowa	Maine	Michigan	Oregon	Vermont	Delaware
Status of law	Enacted by Legislature	Enacted by Legislature	Enacted by Referendum	Enacted by Referendum	Enacted by Legislature	Enacted by Legislature	Enacted by Legislature
Effective date	1/1/80	7/1/79 for all but liquor provisions 5/1/79 for liquor prov.	1/1/78	12/3/78	10/1/72	9/1/73	Delayed
Refund amount	5 cents or more	5 cents or more	5 cents or more	5 cents [1] or more. 10 cents or more.	2 cents [1] or more. 5 cents or more.	5 cents or more	5 cents or more
Handling fee paid by distributer to dealer	1 cent or more	1 cent for 2 yrs. 1/2 cent thereafter.	1 cent or more			20% of refund	20% of refund
Types of beverages covered	Beer Malt beverages Mineral water Soda water Carbonated soft drinks	Liquor Beer Malt beverages Mineral water Soda water Carbonated soft drinks	Beer Ale Soda water Carbonated soft drinks	Beer, ale Soda water Mineral water Carbonated soft drinks Malt beverages	Beer Malt beverages Mineral water Soda water Carbonated soft drinks	Beer Malt beverages Mineral water Carbonated soft drinks	Beer
Refund value must be clearly marked on container?	Yes, embossed, stamped, or labeled.	Yes, except for those which are already labeled otherwise	Yes, embossed, stamped, or on label.	Yes, embossed stamped, or on label.	Yes, embossed, stamped, or on label.	Yes, on label, refillable bottles exempt	Yes, embossed or imprinted.

Characteristics	Connecticut	Iowa	Maine	Michigan	Oregon	Vermont	Delaware
State name must be clearly marked on container?	Yes, embossed, stamped, or labeled.	No	No	Yes, embossed, stamped, or on label	No	Yes, on label refillable bottles exempt.	Yes, embossed or printed (refillable bottles exempt)
Types of containers banned, if any?	-----	-----	-----	Non-returnable container	-----	non-refillable glass	non-refillable glass
Flip tops banned?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plastic 6-pack rings banned?	No	No	Yes	No	Yes	Yes	Yes
Who must accept returned containers?	Dealer, Distributor	Dealer, Distributor	Dealer, Distributor	Dealer, Distributor	Dealer, Distributor	Dealer, Distributor	Dealer, Distributor
Allowable reasons for refusal to accept returned containers?	Labeling not correct, if redemption ctr. in area, damaged/ dirty	If bottle damaged; if refund value not stated; if redemption ctr. in area.	If redemption ctr. in area.	If refund value and state name are not on bottle	Refund value not stated; redemption ctr. in area.	Labeling incorrect size/brand; damaged/ dirty	If redemption ctr. in area; damaged/ dirty; labeling not correct; 120 or more containers at once
Are redemption centers permitted?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Penalty for noncompliance?	-----	Misdemeanor	Civil penalty $100	Fine not less than $100 nor more than $1,000	Both civil and criminal penalties depending on infraction	Maximum $1,000 per violation	Civil penalty $250-$1,000

---

1 Lower deposit provided for certified standard bottles that can be used interchangeably by more than one firm.

RETURNABLES VS. NON-RETURNABLES
PRICE COMPARISON SURVEY

STORE	Brand: beer/ soft drink	Container type *	Number of cont. per pkg.	Total oz.		Shelf price		Cost per oz.
				per cont.	per pkg	Return	Non-Return	
Safeway Store	Coke	R	8	16	128	$1.79		1.39¢
Helena	7-Up	R	8	16	128	1.79		1.39¢
	RC	R	8	16	128	1.39		1.08¢
	Coke	R	1	32	32	.45		1.40¢
	Cragmont Cola	R	1	32	96	3/$1.00		1.04¢
	Cragmont Cola	C	1	12	12		6/89¢	1.23¢
	Coke	C	6	12	72		1.91	2.65¢
	7-Up	C	6	12	72		1.91	2.65¢
	RC	C	6	12	72		1.91	2.65¢
	Coke	Pl	1	67.6	67.6		1.39	2.05¢
	7-Up	Pl	1	67.6	67.6		1.39	2.05¢
	Olympia	NR	6	12	72		2.15	2.98¢
	Olympia	C	6	12	72	Returnable with deposit not available in beer	2.15	2.98¢
	Rainier	NR	6	12	72		2.15	2.98¢
	Rainier	C	6	12	72		2.15	2.98¢
	Budweiser	C	6	12	72		2.19	3.04¢
	Miller	NR	6	12	72		2.21	3.06¢
	Miller	C	6	12	72		2.21	3.06¢

*R=returnable bottle; NR=non-returnable bottle; C=Can; Pl=Plastic

RETURNABLES VS. NON-RETURNABLES PRICE COMPARISON SURVEY

STORE	Brand: beer/ soft drink	Container type	Number of cont. per pkg.	Total oz.		Shelf price		Cost per oz.
				per cont.	per pkg	Return	Non-Return	
Jerry's Market Plentywood	Coke	C	6	12	72		$1.60	2.22¢
	Coke	R	8	16	128	$1.55		1.21¢
	Olympia	C	6	12	72		1.95	2.70¢
	Olympia	NR	6	12	72		1.95	2.70¢
	Budweiser	C	6	12	72		1.95	2.70¢
	Coors	C	6	12	72		1.85	2.56¢
Bill's One-Stop Glasgow	Coke	C	6	12	72		1.75	2.43¢
	Olympia	C	6	12	72		2.25	3.12¢
	Budweiser	C	6	12	72		2.40	3.33¢
Buttrey's Glasgow	Coke	C	6	12	72		1.79	2.48¢
	Coke	R	8	16	128	1.69		1.32¢
	Olympia	C & NR	6	12	72		1.99	2.76¢
Gallagher Food-liner, Glasgow	Coke	C	6	12	72		1.69	2.34¢
	Coke	R	8	10	80	1.47		1.83¢
	Coke	R	8	16	128	1.85		1.44¢
	Olympia	C	6	12	72		2.00	2.77¢
	Budweiser	C	6	12	72		2.31	3.20¢
Safeway Hamilton	Coke	C	6	12	72		1.91	2.65¢
	Coke	R	8	16	128	1.89		1.47¢
	Olympia	C	6	12	72		2.25	3.12¢
	Olympia	NR	6	12	72		2.35	3.26¢
	Budweiser	C	6	12	72		2.35	3.26¢
Fairway Market Hamilton	Coke	C	6	12	72		1.89	2.62¢
	Coke	R	8	16	128	1.89		1.47¢
	Olympia	C	6	12	72		2.25	3.12¢
	Budweiser	C	6	12	72		2.35	3.26¢

Fourth, it is very important to note that the above surveys are not complete, in-depth surveys of Montana beverage prices. A complete survey would have to involved hundreds of stores and an analysis of all possible factors that influence beverage prices. Trying to isolate the effect of a deposit law from·all other possible influences on beverage prices could be the subject of a major study.

Finally, it is important to keep in mind that the actual prices reflected in this survey reflect an established deposit and no-deposit beverage system, and not a post-deposit legislation system in which some adjustments to beverage production, distribution, and retailing would have to be made.

MONTANA LEGISLATIVE HISTORY

Since 1971 there have been twelve bills introduced in the Montana Legislature that dealt directly with beverage containers and litter. Five bills proposed beverage container refunds, seven bills offered litter control programs, and two bills required legislative studies of various alternatives. Of the twelve bills, one general litter law passed both houses of the Legislature and was signed by the Governor; it revised existing statutes prohibiting littering. Both bills that called for studies of beverage containers and litter laws received legislative approval, but the 1973 study was not given a high enough priority by the Priorities Committee to be undertaken by the Legislative Council.

The following is a summary of beverage container and litter bills introduced in the Montana Legislature since 1971 and their final dispositions:

1971 SB 38 - Prohibited sale of beverages in any container except a returnable container subject to complete chemodegradation. (Senate killed on second reading)

HB 112 - Defined, controlled, and prohibited littering of public and private property. (Signed by Governor, Ch. 323)

HB 124 - Established the Litter Act of Montana, provided for a minimum two cent refund on beverage containers, and prohibited nonreturnable containers. (Killed in Committee on Environment and Resources)

HB 85 - Imposed a tax of $1.20 per case on no-deposit beer and soft drink containers. Revenue was to be used by the Department of Highways for litter collection. (Killed in House Ways & Means Committee)

HB 21 - (1st Extraordinary Session) Same as HB 585. (Died in committee on adjournment)

1973	HB 76 - Required a refund value on all beverage containers. (Patterned after Oregon model) (Killed in House Business & Industry Committee)
	HB 554 - Established a litter assessment on certain items and a litter control program. (Patterned after Washington model) (Held over to 1974 Session)
	HJR 34 - Directed the Legislative Council to study the "Oregon Bottle Act, the Washington Litter Act, other state acts, and... Litter Control, Solid Waste Disposal, Recycling, and Energy Conservation". (Passed)
1974	HB 554 - Same as HB 554 in 1973 Session. (Killed in House Natural Resources Committee)
1975	SB 128 - Required reusable beverage containers for beer and soft drinks, established a minimum five-cent refund value or a two-cent refund value on certified containers. (Oregon model) (Killed in Senate Natural Resources and Fish and Game Committee)
	HB 425 - Established a litter assessment on certain items and a litter control program. (Washington Model) (Died in House Natural Resources Committee)
1977	SB 69 - Required reusable beverage containers for beer and soft drinks, established a minimum five-cent refund value or two cents on certified containers. (Same as SB 128) (Killed in Senate on second reading)
1979	HB 2 - Required a minimum ten-cent refund value for beverage containers and established requirements for redemption centers, retailers, distributors, etc. (Killed in House on third reading)
	HJR 56 - Interim Study on Containers. (Passed)

2. AGREEMENTS/DISAGREEMENTS*

I

This chapter presents the general contours of agreement and disagreement between proponents and opponents of beverage container legislation. The chapter constitutes a summary of major proponent and opponent agreements and disagreements presented to the Study Committee. The arguments themselves are contained in the Appendices.

II

Number of Containers Sold

There was general agreement in the testimony presented to the Committee regarding the total number of beer and soft drink beverage containers sold in Montana during calendar year 1978--500 million separate container fillings. There was only slight disagreement about the market share percentage of container types. Table I contains the general marketing characteristics of beverage containers sold in Montana.

TABLE I**
CY 1978

Container	% of Total Proponents	% of Total Opponents
Aluminum can	52%	52%
Bimetallic can	18%	17%
Non-returnable bottle	11%	12%
Returnable bottle	19%	19%
Total containers	500 million	

Economics of Deposit System

1. Costs and Revenues

Proponents of beverage deposit legislation estimate that under a deposit system there will be little or no change in current beer prices, a slight decrease in soft drink prices, and substantial savings to taxpayers and landowners due to reductions in solid waste, litter cleanup, and litter-related injuries and damages. Proponents estimate both the annual costs to and revenue from the deposit system. While costs range from $8,400,000 to $9,375,000, it is anticipated that revenues from recycled aluminum, decreased bottling costs, unclaimed deposits, and reduced solid waste and litter management will more than balance the annual costs of the deposit system according to proponents.*

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*Note: Footnotes in this chapter cite the proponent and opponent arguments found in the Appendix.

**Proponent, Environmental Information Center (EIC) Position Paper, p. 2; Opponent, Letter from Roger Tippy to Bill Dimich, dated July 3, 1979.

Opponents of beverage deposit legislation estimate the annual cost of a Montana deposit system to be in the range of $9 to $10 million. Opponents did not cite a complete breakdown of costs, however, one opponent estimated the additional annual cost for Montana's 50 beer wholesalers to be approximately $3,120,000. This figure assumes no shift in the current market share from aluminum to glass and the need for 30% more labor, trucks, and fuel to deliver the same quantity of beer under a deposit system as under the current no deposit system. When taking into account both beer and soft drink costs to brewers and bottlers, wholesalers, and retailers, opponents estimate the net annual cost of the deposit system to be in the $9 to $10 million range.**

2. Beverage Prices Under Deposit System

Disagreements about beer and soft drink prices under a deposit system followed the general pattern of disagreements under the category of Costs and Revenues above. Proponents of beverage deposits argued that beverage prices tend to rise in the initial months of a deposit law as the beverage industry passes on to the consumer capital changeover costs. The proponents contend that after the first few months, however, general beverage prices fall back to or below pre-deposit law levels when recycling revenues, unclaimed deposits, and lower bottling costs begin to accumulate. As partial evidence that returnable beverage containers carrying deposits are cheaper than non-returnables, proponents surveyed prices in the Helena area in August 1979. Their survey concluded that returnable bottles averaged 25-35¢ per case cheaper for beer than non-returnable containers, while returnable soft drink bottles averaged nearly $2.00 per case cheaper than nonreturnable soft drink containers sold in Montana. In addition, deposit proponents refuted beverage industry price comparison surveys that show non-deposit states had cheaper beverage prices than deposit states. Deposit proponents argued that many reasons besides the existence of deposit laws can account for beverage price differences among states: distances from breweries, excise tax differentials among states, labor costs, differing state laws regarding beverage sales and competition, different legal drinking ages among states, etc.

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*EIC Position Paper, pp. 13-18.

**U.S. Brewers Association, (USBA) Position Paper, pp. 2 and 5; Montana Beer and Wine Wholesalers' Association (MBWWA), p. 3; and letter from Roger Tippy to the board members of the MBWWA, dated August 8, 1979.

Finally, proponents contended that when pre-deposit prices are considered in Oregon, Vermont, and Maine and reflected against prices in neighboring states, the relative price of beer in the deposit states showed no change; there was an actual decline in the relative price of soft drinks in the deposit states.*

Beverage deposit opponents held that the $9 to $10 million cost increase they ascribed to a Montana deposit law would have to be passed on to beverage customers. The Montana Beer and Wine Wholesalers' Association representative estimated that a deposit law would add $5 million a year to the consumer price of beer in Montana and $4 to $5 million to soft drink prices. Another deposit opponent, the Montana Food Distributors' Association, included in material sent to the Study Committee a survey of beverage prices conducted on January 8, 1979 by the Can Manufacturers Institute located in Washington, D.C.**

The CMI survey reported that non-deposit law states had an aggregate 'national brand' retail beer price of $1.93 for six 12-ounce cans and $1.90 for six 12-ounce bottles. This compared with the deposit law states' aggregate 'national brand' retail beer price of $2.15 for six 12-ounce cans and $2.16 for six 12-ounce bottles. The beer excise tax per six-pack was reported by CMI to be an aggregate of 5.36¢ in non-deposit states and 11.06¢ in deposit states.

Aggregate retail soft drink prices reported by the CMI survey were $1.71 for a 'national brand' six-pack of 12-ounce cans ($1.42 for 16-ounce bottles) and $1.12 for a six-pack of 12-ounce 'store brand' cans. In deposit states, CMI reported aggregate retail soft drink prices for six-packs to be $1.70 for 12-ounce 'store brand' cans.

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*EIC Position Paper, pp. 13-17; written and oral testimony by Miki Lofft presented at October 6, 1979 meeting of Study Committee on Containers.

**Position Paper by MBWWA, p. 1; Position Paper by Montana Food Distributors' Association (MFDA), (Thomas Haines); CMI survey of beer and soft drink prices.

Energy Savings of Deposit System

The question of possible energy savings under a Montana deposit law revolves around several issues. Return rates of containers are important because of their relationship to the total resource use/savings of beverage container manufacturing. In addition, gasoline consumption is anticipated to increase in the distribution sector under a deposit system because of larger, heavier refillable containers and backhaul transportation to bottlers and brewers. Finally, the anticipated total energy savings ascribable to a deposit system was a major source of disagreement between proponents and opponents. Table II presents the range of disagreements between the two sides.

TABLE II

	Proponents	Opponents
Projected container return rate in Montana	85-90% (1st yr)* 95% (2nd yr)	65.5 to 90%****
Gasoline consumption increase	2-5%**	47%*****
Total energy conserved, if any	Energy equivalent of 7 million gallons of gasoline per year***	Range of zero to a slight increase******

As a point of reference on the return rate issue, the Study Committee notes that the return rate in Oregon is 93%.

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*EIC Position Paper, p. 19.

**Letter from Montanans for Deposit Legislation to Committee, dated 13 October 1979, pp. 1-3.

***EIC Position Paper, p. 21.

****USBA Position Paper, p. 3; MBWWA Position Paper, p. 2.

*****MBWWA Position Paper, p. 1; Letter from MBWWA to staff researcher dated September 27, 1979.

******MBWWA Position Paper, p. 3; USBA Position Paper, p. 3.

Current Recycling and Solid Waste Generation Rates

Table III presents the range of differences between proponents and opponents regarding current recycling and solid waste generation rates. The two sides use slightly different container weights in calculating beverage container solid waste that is littered or landfilled, and they differ somewhat on the individual container recycling rates.

TABLE III*

	Weight (oz.)		Recycling Rate		Solid Waste Tonnage	
Container	Proponent	Opponent	Proponent	Opponent	Proponent	Opponent
Aluminum			43%	43-50%	3,300	3,000
Steel can (bimetal)	1.6	1.0	1%	5%	4,500	2,500
Refillable bottle			95%	95%	2,400	2,500
Nonrefillable bottle	8.5	6.5	5%	10%	13,800	10,000
					24,000	18,000

Solid Waste Disposal Savings Under Deposit System

Table III indicates the tonnage of beverage containers that end up as litter or are landfilled. Deposit proponents estimate that the entire 24,000 tons of such containers will be diverted from the permanent litter/solid waste disposal stream. They calculate the litter collection and solid waste disposal savings resulting from this reduction to be $720,000, based on an Environmental Protection Agency estimate of $30 a ton for solid waste collection and disposal. Proponents argue that the $30 a ton collection and disposal rate is realistic because nearly 85 percent of Montana's solid waste incurs direct collection costs and that the remaining 15 percent (generated by rural residents) is collected and transported to landfills at considerably more cost than under a systematic collection system. Finally, proponents insist that present disposal costs will increase rapidly as leachate control and landfill upgrading standards are imposed on non-complying Montana communities.**

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*The Recylcing and Solid Waste Tonnage are from: EIC Position Paper, p. 2; MBWWA Position Paper, p. 2; MBWWA Proposed Findings of Fact, p. 4.

**EIC Position Paper, p. 5; Montanans for Deposit Legislation, Rebuttal to Testimony, October 6, 1979, p. 6.

Opponents of deposit legislation argue that about 67% of beverage litter/solid waste that they estimate is currently being generated will be diverted from landfills under a deposit law--about 12,000 tons. Opponents calculate only the cost of disposing of the 12,000 tons--at $7.50 a ton. The net savings under the deposit system therefore is calculated by opponents to be $90,000. Opponents do not include collection costs because, they argue, many suburban and rural residents do not have trash collection services. Further, cities with trash collection services have higher beverage container return rates; therefore these cities have a smaller percentage of such containers in their solid waste collection system. Opponents also contend that solid waste collection activity would experience no savings under a deposit system because beverage containers represent only a small percentage of total solid waste, and because collection systems have built-in slack to accomodate cyclic fluctuations.*

Litter Rates

Both proponents and opponents of beverage deposits used 'piece count' and 'volume count' to measure the percentage of beverage litter in total litter. Only the proponents also used a 'permanent count' of beverage litter as a unit of measurement.** Table III presents the units of measurement used by each side and the percentage of beverage litter in total litter.

TABLE IV

Unit of Measurement	Percent beverage container in total litter	
	Proponents***	Opponents****
Piece count	31	16-20
Volume count	48	45-50
Permanent count	98	No estimate cited

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*MBWWA Position Paper, p. 4; USBA Position Paper, p. 2.

**Piece count is a unit of measurement that counts each separate item of litter, volume count measures each litter category as a percentage of total litter volume, and permanent count measures non biodegradable items that accumulate unless physically picked up.

***EIC Position Paper, pp. 3, 37.

****MBWWA Proposed Findings of Fact, p. 5.

According to deposit proponents, volume count is a better measure of litter's visual impact than the piece count system. Opponents, on the other hand, insist that litter is physically collected piece-by-piece and therefore the piece count system more realistically measures collection costs.*

Litter Reduction

The effectiveness of deposit legislation in reducing beverage litter was evaluated by both proponents and opponents. Deposit legislation proponents generally held that beverage deposit laws reduced beverage container litter volume in Oregon by 66.1 percent in the first year after the deposit law became effective and 83.4 percent in the second year; Vermont and Maine's reduction was 79.9 percent and 77 percent respectively. When all litter was taken into account, proponents cited a litter volume reduction under deposit legislation in Oregon of 21 percent in the first year and 47 percent in the second year. According to proponents, all litter was reduced in Vermont by 32.9 percent and 40 percent in Maine.

Proponents concluded that a deposit law in Montana would reduce beverage container litter by 80 percent or more after the first year. In general, proponents concluded that deposit legislation in Oregon, for example, was three times more effective than Washington's litter tax in reducing litter volumes.*

Opponents of beverage deposits used both the piece count and volume count method in arguing that deposit laws are not a cost-efficient means of reducing litter.

Opponents cite a 10% piece count reduction in total litter in Oregon and a 60 percent volume reduction of total litter in non-deposit Washington state as evidence for their contention that litter taxes are more effective than deposit legislation in reducing litter.**

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*EIC Position Paper, p. 3; MBWWA Position Paper, p. 3.

**EIC Position Paper, p. 21 and pp. 21-22 fn.

***Buttrey Food Stores Position Paper, p. 3; USBA Position Paper, p. 2; MBWWA Position Paper, p. 3.

Alternative Programs

In the area of alternatives to deposit legislation there is no agreement among proponents and opponents of deposit legislation. The proponents evaluation of alternative solutions to beverage container problems leads them to reject the ideas of litter taxes, industry recycling programs, and "no state action" in favor of uniform deposit legislation.

Opponents argue variously for a litter tax*, continuation of Montana's current recycling system**, and a comprehensive resource recovery program.***

Food Containers

There seemed to be neither agreement nor disagreement among the various groups involved in the study regarding data, problems, or solutions to food container issues. Only two groups presented information on the subject--only one recommended a solution.****

SUMMARY

The above summary of agreements and disagreements has been presented by the Study Committee on Containers in the hope that it will be a useful guide to interested citizens in understanding beverage container issues. It is important for the reader to keep in mind that this is only a summary of the major issues. It must be used in conjunction with the testimony presented to the Committee and included in the Appendices of this report. Only then will a serious reader be able to approach an understanding of this important public issue.

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*MFDA Position Paper (Thomas Haines), p. 1; MFDA Position Paper (Edmund Sheehy, Jr.), pp. 3-4.

**USBA Position Paper, p. 6; MBWWA Position Paper, p. 1.

***USBA Position Paper, p. 4.

****MBWWA Proposed Findings of Fact, pp. 1-2; Letter, Thelma D. McCarty, Montana Retail Association, to Staff Researcher dated September 5, 1979; EIC Position Paper, pp. 30-32.

APPENDIX A*

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*Staff reports not incorporated in the main body of the Committee's final report are contained in Appendix A.

OREGON AND VERMONT

The states of Oregon and Vermont have had deposit legislation in effect since 1972 and 1973 respectively. The laws in the other five states have either recently taken effect, will take effect in 1980, or are delayed as in the case of Delaware. This section is a brief description of the general experiences in Oregon and Vermont. These two states have the longest record of dealing with deposit legislation.

Numerous studies have been done on the Oregon beverage container deposit law. The two most commonly cited by proponents and opponents seem to be:

1) Study of the Effectiveness and Impact of the Oregon Minimum Deposit Law, prepared by the consultant firm of Applied Decision Systems (ADS). The study was released in October 1974. The study was prepared for the Oregon Legislature* and covered only the first year after the Oregon deposit law became effective. The ADS study concluded that in the first year:

> a) There was a 66% reduction in beverage-related litter throughout the State of Oregon while daily traffic along the highways increased 4.5%, "making the decline even more significant....Other litter,

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*Floyd J. Gould, Legislative Fiscal Officer for the State of Oregon, cautioned in a letter accepting the ADS study:

> "Although it is neither possible nor desirable to restrict the distribution and use of this study report, it is necessary to point out that the Oregon Legislature cannot assume responsibility for the accuracy or completeness of information voluntarily furnished by industry sources. Furthermore, those who would propose to use this study for any purpose other than the specific one for which it was commissioned are specifically cautioned to recognize the limitations in the scope of the study, its one-year time frame, and the specific circumstances which existed in the State of Oregon during the period covered.
>
> The Economic Impact Analysis section of the report was developed to a substantial degree from information derived from voluntary responses to questionnaires, as set forth in the main text of the report. It must also be recognized that this report does not attempt to deal with the total environmental impacts of the law, its implications for energy use or conservation, or the broader implications raised by the interest of other jurisdictions in this type of legislation."

> however, did not decline after the law, and in fact increased by 12%. Total litter, as a result, only declined by 10.6% because beverage-related litter...comprised just 30% of the total."*
>
> b) The ADS study concluded that soft-drink producers, brewers, beer wholesalers and distributors, can, glass, and bottle manufacturers experienced increased costs and/or decreased profits during the first year of the law. Oregon's retail food outlets were not included in the report's economic summary of results except to note that there would be an "addition of a potentially large number of jobs and overtime hours in retail stores handling bottles...."**
>
> c) In its investigation of consumer attitudes toward the Oregon deposit law, the ADS report concluded that "Consumers in Oregon know of the Minimum Deposit Law and approve it overwhelmingly."***

2) The Economic Impact of Oregon's "Bottle Bill" by Charles M. Gudger and Jack C. Bailes. This study was done by two professors at Oregon State University, School of Business and Technology. The report was released in March 1974 and was based upon data collected for 1973, the second year of the law.

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*Applied Decision Systems, Project Completion Report Study of the Effectiveness and Impact of the Oregon Minimum Deposit Law (Wellesley Hills, Mass.: October, 1974, pp. i-ii (hereinafter referred to as ADS). A pro-bottle bill study indicated that the decline in beverage-related litter was 72% for the first year and 83% for the second year. The total decline in roadside litter was put at 26% by item count and 35% by volume for the first year; for the second year of the bill the total decline in litter was 39% by item count and 47% by volume (see the glossary for a definition of "item count" and "volume count"). D. Waggoner, Oregon's Bottle Bill Two Years Later (Portland, Oregon: May 1974) p. ix.

**ADS, p. iii.

***ADS, p. v.

The Gudger and Bailes study concluded that:

> a) Beverage container solidwaste and litter was reduced by 88%.
>
> b) It could not be demonstrated that the deposit law caused reduction in beverage sales volumes.
>
> c) Container manufacturers, beer distributors, and retailers "experienced adverse economic effects, but total operating income for all business sectors combined has been increased by $3.93 million per year due to the bill. Businesses have suffered capital losses and changeover costs of $175,000 and have made new investments of $5.35 million."
>
> d) Beverage price increases in Oregon could not be demonstrated to be caused by the deposit law.*

The two reports found widely different economic impacts because of the law. ADS concluded that there was a $6,873,000 to $8,590,000 decrease in operating income for the beverage industry while the Gudger and Bailes study reported an improvement of $3,944,000. The discrepancies in the two reports are hard to resolve and seem to be typical of the contradictory nature of deposit literature. They are presented here to demonstrate the divergence of conclusions that have been made in Oregon in just one area.

VERMONT

Vermon't current beverage container deposit law was implemented in two stages. The first stage imposed a 4-mill litter levy on each beverage container (9.6 cents per case). The revenue from the tax went to towns on a per capita basis for landfill operation and maintenance and to the Vermont Agency for Environmental Conservation to establish and operate solid waste recycling centers. Stage one lasted one year - from July 1972 through June 1973. The second stage was the imposition of a deposit requirement and lifting of the 4-mill tax. The deposit requirement took effect September 1, 1973. The law differed from Oregon's in that detachable pull tab openings were not banned, there was no provision for certified standard bottles, and redemption centers were not specifically authorized.*

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*Charles Gudger and Jack C. Bailes, the Economic Impact of Oregon's "Bottle Bill" (Corvallis, Oregon: March 1974) p. 70.

A 1975 report on the Vermont law noted:

> onclusions about the effectiveness of the Vermont bill have been less certain than conclusions drawn from Oregon because there has been less evidence available. There are less raw data to analyze, no detailed economic analyses such as the Gudger-Bailes or ADS reports; nor is there the detailed equivalent of the Governor's litter survey to which one can refer. Thus a conclusion of what the Vermont experience has to say about the desirability of deposit legislation in other areas of the country must rely more heavily upon subjective evaluations and evidence, and be subject to a wider degree of interpretation.**

A late 1975 summary of the Vermont deposit law by the U.S. Environmental Protection Agency*** concluded that: (1) beverage-related highway litter decreased in Vermont by approximately 67 percent between 1973 and 1974; (2) sales of beer declined about 10 percent, although, the report noted that "factors other than the deposit law probably accounted for an undetermined portion of that decline"; (3) beer and soft drink prices rose, but inflationary forces probably accounted for a portion of the price rise; (4) bottlers were generally obtaining reasonable trippage rates; and (5) employment had increased due to handling and transportation factors.

The general arguments for an against deposit legislation in Oregon and Vermont revolved around several issues: the effect of such legislation on beverage-related litter and litter in general, the attendant reduction in solid waste volume and collection and disposal costs, the proper roles of government and private enterprise in this field, and questions of resource use and depletion.* A major argument revolved around the economic consequences of deposit legislation. Proponents argued that a returnable system would be no more expensive (and usually less expensive) than a system where beverage containers were used once and then discarded. Opponents pointed to the conversion costs of a returnable system, fear of declining beverage consumption, lower dollar volumes, and shifts in buying patterns.

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*Amendments to the law since 1973 have banned detachable pull tab openings and provided for redemption centers.

**Stanford Environmental Law Society, Disposing of Nonreturnables: A Guide to Minimum Deposit Legislation (Stanford, California: 1975) pp. 31-32.

***Michael Loube, "Beverage Containers: The Vermont Experience" (EPA, Solid Waste Management Series SW-139: 1975).

ALTERNATIVE LEGISLATION

WASHINGTON STATE

The Washington State Model Litter Control Act was passed by the state legislature in the spring of 1971 and approved by Washington voters at the November 1972 general election. The program is often cited as an alternative to deposit legislation. The program, as amended in 1979, is a remedial litter pickup system with primary emphasis on litter collection, recycling, and behavorial modification. Funding for the program comes primarily from a litter assessment tax levied on manufacturers, wholesalers, and retailers of any product reasonably related to the litter problem.

The source of program funds, as of August 1977, was as follows:

INDUSTRY	PERCENT OF TOTAL
Food & Beverage Manufacturers	15.9%
Wholesale Food Stores	15.6
Retail Food Stores	33.3
Eating & Drinking Establishments	6.9
Drugstores	2.9
Automatic Merchandising Units	0.3
General Merchandising Stores	4.7
Printing & Publishing	3.7
Container Manufacturing	2.7

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*Since the mid 1970's energy use and possible savings of a returnable beverage container system have been debated by both sides of the deposit issue. It is a major part of the debate. I have not been able to finish a review of the literature on this subject in time for inclusion in this report. When the review is complete, I will send the Study Committee a summary of the arguments.

INDUSTRY	PERCENT OF TOTAL
Continued...	
Manufacturing Paper & Paper Products	1.5
Other Manufacturers	0.8
Other Wholesalers	8.0
Other Business	1.8
Total	100.00%

The program's budget for Fiscal Year 1979 is $1,401,193. The FY1980 budget is estimated to be $1,739,000 and FY1981 is estimated to be $1,981,000. The Washington State Department of Ecology, which administers the Model Litter Control Act, must allocate its litter account funds according to the following constraints:

> 40-50% to employ youth from the state to remove litter from places and areas that are most visible to the public.
>
> 20-30% to accomplish the other litter control purposes of the Act, including a substantial portion to be used for public education and awareness programs.
>
> 20-30% to promote and foster private local recycling efforts.

The program operates with seven fulltime headquarters staff members and eight full-time regional staff members. For FY1979 the program employed 72 FTE litter patrol youths (this means about 60 five-person crews for summer litter collection).

Mike Hambrock, Program Director for the Litter Control Program in Washington State estimates that for 1978 there was approximately a 0.3% reduction in the over litter generation rate in the state with approximately a 13% reduction for roads and highways. The higher percentage for roads and highways is accounted for, according to Mr. Hambrock, because most of the emphasis of the program is placed upon prevention and collection along roads and highways.

For the four year period 1975 to 1978 the litter generation rates for Washington State were reported as follows:

Litter Generation Rates*
(tons per year)

	1975	1976	1977	1978
All roads and highways	22,860	19,650	15,160	13,240
Parks and recreation areas	1,810	390	380	430
All urban areas	14,530	17,960	17,830	19,590
TOTAL	39,200	38,000	33,370	33,260

The total litter generation rate in Washington, using their current quantification methods**, has been reduced about 15% overall for the four year period 1975 to 1978.

VOLUNTARY RECYCLING PROGRAMS

HJR 56 calls for an examination of two voluntary recycling programs - one in the state of Idaho, the other in Arizona.

TRIIP

The Idaho program was named "Total Recycling in Idaho Pays" or TRIIP. The program is no longer in operation since the primary recycling center for the program was destroyed during the summer of 1979 by a fire that burned down the TRIIP warehouse and destroyed the program's forklift and separator.

The TRIIP program operated for approximately eight weeks. The program cannot be evaluated here since no long-term data on its collection rates are available. The sponsors of the program, the Idaho Beer and Wine Wholesalers, intend to begin the program again but have no definite time set for doing so.***

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*1977 Litter Quantification Report. 1978 quantification figures given to writer by Mike Hambrock, Sept. 17, 1979. A note at the bottom of the report warns that the litter generation rates have been estimated from small samples and should be used with caution.

**Washington's methods for computing litter generation rates changed in 1975. The Program now surveys 44 sites six times each year to establish the statewide generation rate.

***Conversation with Ted O'Canna, Boise, Idaho, Aug. 17, 1979.

BIRP stands for the Arizona Beverage Industry Recycling Program. The Arizona Wholesale Beer and Liquor Association and the Arizona Softdrink Bottlers Association formed BIRP in 1971 as a nonprofit corporation aimed at comprehensive container reclamation. The purpose of the program was to "demonstrate that a viable recycling program could be conducted on a self-sustaining basis, relying on neither tax subsidies nor continuing industry funding."*

BIRP had 12 recycling centers in operation as of August 1979. Two of the centers are processing units for shredding and shipping. The 10 other centers are satellite collection centers. BIRP pays customers 23 cents a pound for aluminum beverage cans and household aluminum scrap, one cents a pound for newspapers, and 1/2 cents per pound for steel and glass food containers. The chart on page A-9 presents the May 1979 collection activities of Arizona BIRP along with total payments and pounds collected since 1971.

In 1978, the total collection activity of BIRP was:

MATERIAL	POUNDS COLLECTED
Aluminum	16,283,067
Steel	1,090,923
Glass	6,581,200
Newspaper	13,646,386
TOTAL	37,601,576

Total 1978 payments to the public were $2,980,970.26. According to a BIRP official the collection rate for aluminum represents a 60% recycling rate for aluminum beverage containers in Arizona. The official could not provide a statewide recycling rate for the steel, glass, and newspaper segment of BIRP's activity.**

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*Enclosure to letter from David N. Perry, BIRP Public Relations Officer, to writer, August 22, 1979.

**The above information was given to the writer in a telephone conversation with Jerry Petrie, BIRP General Manager, August 23, 1979.

MAY OPERATIONS

	ALUMINUM	STEEL	GLASS	NEWSPAPER	TOTALS	5/78 TOTALS	5/77 TOTALS
Phoenix	517,319	12,477	167,879	79,470	777,145	1,004,766	953,979
Mesa	72,751	10,991	16,625	307,248	407,615	490,855	423,084
Glendale	65,137	7,783	18,473	205,869	297,262	365,953	242,851
Scottsdale-Tempe	78,108	8,288	27,349	194,803	308,548	369,168	163,547
Prescott	25,274	3,238	10,393	25,316	64,221	52,048	—
Lake Havasu	25,835	4,082	—	—	29,917	22,813	—
Kingman	14,956	1,687	9,222	—	25,865	27,527	—
Flagstaff	65,309	7,287	18,910	61,648	153,154	153,331	111,434
Holbrook	34,170	1,423	3,184	—	38,777	45,947	—
Sierra Vista	32,857	2,797	—	—	35,654	25,850	—
Tucson	316,503	20,008	133,853	165.604	635,968	563,107	501,107
Yuma	50,111	4,358	15,385	59,419	129,272	236,424	—
Coolidge*	6,936	—	—	—	6,936	5,908	—
Florence*	5,537	—	—	—	5,537	3,877	—
Casa Grande*	1,937	—	—	—	1,937	13,145	—
Eloy*	1,631	—	—	—	1,631	7,467	—
Gila Bend*	5,091	—	—	—	5,091	6,277	—
Buckeye*	3,326	—	—	—	3,326	5,174	—
TOTALS	**1,322,788**[1]	**84,419**	**421,272**	**1,099,377**	**2,927,866**	**3,399,637**	**2,396,002**
PAYMENTS	**$277,966.35**	**$844.19**	**$2,103.55**	**$10,933.77**	**$293,300.93**[2]	**$248,739.42**	**$176,697.43**

TOTAL POUNDS COLLECTED TO DATE[3]... 139,167,077

TOTAL PAYMENTS TO PUBLIC TO DATE[3]... $10,369.002.12

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[1] Includes 49,887 pounds of aluminum scrap.

[2] Includes $1,393.07 paid for bottles at 1¢ each.

[3] Totals since April 1, 1971.

* Mobile Center

FOOD CONTAINERS

Some information on the types and quantities of food containers distributed in Montana is presented in the various position papers. However, except for a few specific items, such as milk cartons and egg containers, such information is not generally available for the Montana market.*

Some national data are available which may be of some help in forming a rough idea about food containers. Most of the data relate to food containers that end up in municipal solid waste.

A 1977 report by the EPA estimated that the annual commercial and residential solid waste generated in the country totaled about 144 million tons annually, of which more than two-thirds was composed of manufactured products and packaging materials. Product and packaging components of municipal solid waste were reported to have more than doubled since the early 1950's. In the table on page A-11, containers and packaging represent 33% of total waste disposed of in 1975 and 54% of nonfood product waste disposed of in 1975.**

RECYCLING IN MONTANA

Recycling of beverage containers in Montana is currently being conducted by several businesses. Montana Recycling, Incorporated, has been operating since October of 1971 when its first center was opened in Missoula. The firm now has centers in Great Falls, Butte, Bozeman, and Billings. The aluminum beverage can constitutes the major portion of its beverage container business although some beer bottles are bought from the public. Beginning in August the firm planned to begin buying and recycling steel beverage cans.

Three other major scrap metal dealers buy aluminum beverage cans from the public: Pacific Hide and Fur with 12 locations in Montana, McCracken Metals in Butte, and Carl Weissman and Sons, Inc., in Great Falls, Bozeman, Billings, and Kalispell.

Several nonprofit sheltered workshop programs that provide employment and training to severely handicapped people engage in beverage container recycling in Montana. The oldest such program is operated in Kalispell. The major portion of their recycling consists of aluminum cans. Other such workshops exist in Glasgow, Hamilton, Havre, Libby, Miles City, Plentywood, and Sidney.

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*See letter to writer from Thelma D. McCarty, Office Manager, Montana Retail Association, dated September 5, 1979.

**U.S. Environmental Protection Agency, Office of Solid Waste Management Programs. Resource Recovery and Waste Reduction; Fourth Report to Congress. EPA Publication SW600. Washington, U.S. Government Printing Office, 1977, p. 17.

TABLE 3

POST-CONSUMER AND COMMERCIAL SOLID WASTE GENERATED AND AMOUNT RECYCLED, BY DETAILED PRODUCT CATEGORY, 1975*

(As-generated wet weight, in thousands of tons)

Product category	Gross discards	Material recycled		Net waste disposed of		
		Quantity	Percent	Quantity	% of total waste	% of nonfood product waste
Durable goods:	14,740	390	3	14,350	11	19
Major appliances	2,430	150	6	2,280	2	3
Furniture, furnishings	3,370	0	0	3,370	3	4
Rubber tires	1,790	190	11	1,600	1	2
Miscellaneous durables	7,150	50	1	7,100	5	9
Nondurable goods, exc. food:	24,140	2,775	11	21,365	17	27
Newspapers	8,850	1,820	21	7,020	5	9
Books, magazines	3,075	255	8	2,820	2	3
Office paper	5,210	700	13	4,510	4	6
Tissue paper, incl. towels	2,235	0	0	2,235	2	3
Paper plates, cups	485	0	0	485	–	–
Other nonpackaging paper	1,045	0	0	1,045	1	1
Clothing, footwear	1,250	0	0	1,250	1	2
Other misc. nondurables	1,990	0	0	1,990	2	3
Containers and packaging:	46,550	4,810	10	41,740	33	54
Glass containers:	12,520	370	3	12,150	10	16
Beer, soft-drink	6,345	250	4	6,095	5	8
Wine, liquor	1,790	30	2	1,760	1	2
Food and other	4,385	90	2	4,295	3	6
Steel cans:	5,525	300	5	5,225	4	7
Beer, soft-drink	1,340	65	5	1,275	1	2
Food	3,195	160	5	3,035	2	4
Other nonfood cans	760	40	5	720	1	1
Barrels, drums, pails, misc.	230	10	5	220	–	–
Aluminum:	770	85	11	685	1	1
Beer, soft-drink†	510	80	16	430	–	1
Other cans	25	0	0	25	–	–
Aluminum foil	235	5	2	230	–	–
Paper, paperboard:	23,135	4,055	18	19,080	15	25
Corrugated	12,520	2,755	22	9,745	7	13
Other paperboard	5,470	720	13	4,750	4	6
Paper packaging	5,145	560	11	4,585	4	6
Plastics:	2,635	0	0	2,635	2	3
Plastic containers	420	0	0	420	–	–
Other packaging	2,215	0	0	2,215	2	3
Wood packaging:	1,800	0	0	1,800	1	2
Other misc. packaging	165	0	0	165	–	–
Total nonfood product waste	85,430	7,975	9	77,455	61	100
Add: Food waste	22,785	0	0	22,785	18	29
Yard waste	26,010	0	0	26,010	20	33
Misc. inorganic wastes	1,900	0	0	1,900	1	2
Total	136,125	7,975	6	128,150	100	164

*Office of Solid Waste, Resource Recovery Division, and Franklin Associates, Ltd. Revised January 1977.

†Includes all-aluminum cans and aluminum ends from nonaluminum cans.

Most of the sheltered workshop recycling centers sell or broker their recycled containers through one of the larger scrap metal dealers or recycling firms.

The current recycling rates for glass and steel beverage containers in Montana were not able to be determined as of the writing of this report. The various position papers may contain some information on the rates. Aluminum beverage containers, a more valuable material than glass or steel, are probably being recycled at a little more than a 40% rate. Again, the position papers may contain some general consensus on the aluminum beverage container recycling rates for Montana.

FREIGHT RATES ON EMPTY CONTAINERS AND ALUMINUM SCRAP

Freight rates for empty containers and aluminum scrap from Montana to various points are presented on page A-13. These rates should give the Committee an idea of relative costs for such freight.

BEER SHIPMENTS TO MONTANA

The map on page A-14 represents the general shipment pattern for beer from various states to the Montana market. Minnesota and North Carolina shipments together represent a little under 1%.

BURLINGTON NORTHERN

MARKETING DEPARTMENT
Pricing Division – Billings Region

600 First Northwestern Bank Center
175 North 27th Street
Billings, Montana 59101
Telephone (406) 259-4521

September 5, 1979

Mr. Jim Oppedahl
Room 138
State Capitol
Helena, Montana 59601

Dear Mr. Oppedahl:

Following are freight rates you requested.

On empty containers: Minimum weight 30,000 pounds.

From:	Milwaukee, Wisconsin	Golden Colorado	Olympia, Washington
	Rates Per Cwt.		
Billings	$1.74	.85	1.43
Bozeman	1.86	1.02	1.23
Butte	1.86	1.12	1.09
Great Falls	1.63	1.12	1.72
Lewistown	1.63		
Miles City	1.63	1.02	1.65
Missoula	2.03	1.30	.91
Helena		1.12	1.09
Glasgow		1.42	1.52
Havre		1.30	1.32
Kalispell		1.48	.89
Shelby		1.28	1.15
Sidney		1.31	2.97
Wolf Point		1.34	2.97

Scrap aluminum from Billings to Seattle, Washington and Listerhill, Alabama.

Seattle, WA		Listerhill, AL	
Minimum Weights		Minimum Weights	
60,000#	80,000#	60,000#	80,000#
2.08 cwt.	1.84 cwt.	3.03 cwt.	2.81 cwt.

All rates quoted are further subject to a 2.4% surcharge.

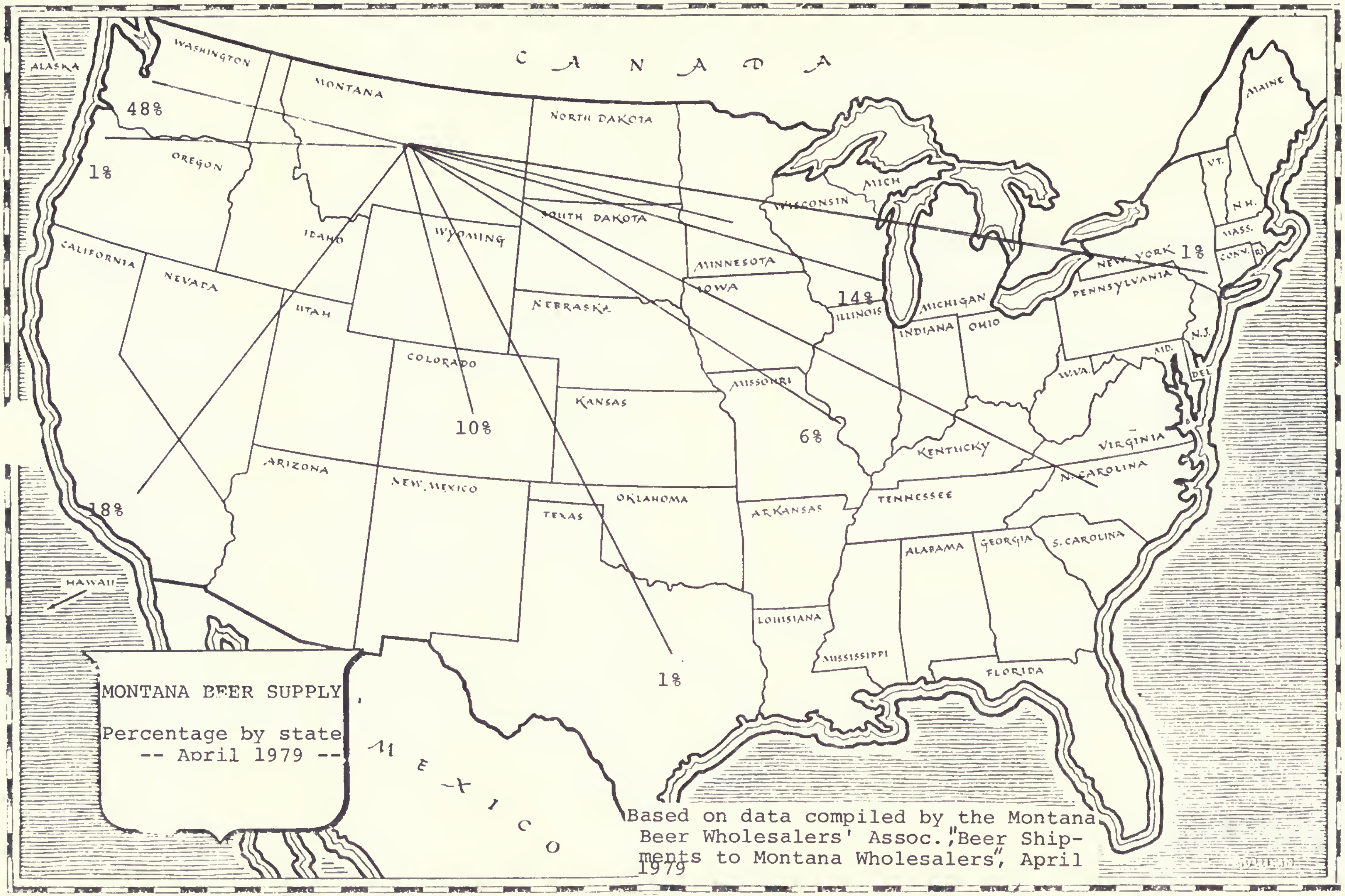
Very truly yours,

H. K. Frank

Herman K. Frank
Regional Manager of Pricing

SEP 6

File: L-42



MONTANA BEER SUPPLY

Percentage by state
-- April 1979 --

Based on data compiled by the Montana Beer Wholesalers' Assoc.,"Beer Shipments to Montana Wholesalers", April 1979

HELPFUL DEFINITIONS

1) One-Way Container: A no-deposit, no-return bottle or can which is discarded after one use. It may be an aluminum can, a bimetal can (steel sides and bottom, aluminum top) or a glass bottle. Some one-way containers are recyclable.

2) Refillable bottle: A glass bottle which is designed for return and reuse. Its bottom and sides are sturdy enough to withstand repeated handling.

3) Returnable: A bottle or can that bears a deposit. It is often a refillable bottle, but it may also be a non-refillable bottle or can which, when returned, is recycled.

4) Simple deposit: A simple deposit system requires that all soft drink and beer containers have a minumum refundable deposit.

5) Preferential deposit: This sytem requires a minimum deposit on all containers, but a lower or preferential deposit is given to bottles that have been certified as refillable by more than one company.

6) Return rate: The percentage of bottles and cans that is returned for redemption. If a retailer sells 100 bottles of beer and gets back 90 from consumers for redemption, the return rate is 90%.

7) Trippage: The number of times a refillable bottle is returned and reused.

8) Recycling: The processing of waste to recover materials which may be profitably used again. For example, used beverage containers are crushed and the glass or aluminum used for the manufacture of new containers.

9) Source reduction: The production of reusable or more durable products; for example, refillable bottle which can be substituted for 20 or 30 throwaways or cans, thus reducing waste.

10) Litter: Usually defined as "manmade, misplaced solid waste" or "uncontainerized trash."

11) Piece count: A unit of measurement for litter in which each piece is counted as "one". Under this system an apple core, a tire, and a beverage container are treated as equal.

12) Volume count: A unit of measurement for litter in which the total volume of each item in litter is calculated.

Modified from Peter Franchot, "Bottles and Cans; the Story of the Vermont Deposit Law."
(Washington, D.C.)

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SUBJECT: Litter Collection/Disposal in Montana

DATE: October 29, 1979

PREPARED FOR: Interim Study Committee on Containers

PREPARED BY: Jim Oppedahl, Staff Researcher

I

The following is a summary of information gathered since August on litter collection activity in the state of Montana. It is organized by the government agency contacted.

It should be kept in mind that the following information is not a complete picture of litter collection activity in Montana. It is very fragmentary. Where costs are presented they usually represent informed estimates. Few governmental entities have accounting systems capable of accurately identifying litter collection/disposal costs. These costs are usually buried within larger "maintenance" budgets. In addition, private landowners were not part of this survey.

Opponents and proponents of deposit laws in Montana are in fairly close agreement as to the percentage of beverage container volume in total litter. Both sides agree that beverage containers represent about 48% of total litter on a volume count basis. When piece count is the unit of measurement, opponents of deposits place the percentage of beverage containers to total litter at between 16 and 20%, while deposit proponents calculate 31%.

II

County Governments

The letter on A-19 was sent to all county governing boards in Montana. To date, 20 counties have responded. Two of the counties responding have consolidated city/county forms of government -- their responses are presented in the next section. Of the 18 remaining respondents only four reported litter collection/disposal expenditures.

Those expenditures totaled $1,500. Most of the counties reported no expenditures at all and noted that when litter was collected in the county it was done by private individuals or local service clubs.

City Governments

Four city governments reported the following litter collection/disposal expenditures in the most current fiscal year:

Anaconda - Deer Lodge County	$ 10,400
Billings*	26,770
Butte - Silver Bow County	30,170
Helena	71,250
Missoula**	---
Total	$138,590

Glacer National Park

The National Park Service collects litter along the roadsides and in the campgrounds of Glacier during seven months of each year. The Park's accounting system does not keep track of litter collection/disposal costs in the campgrounds. However, collection activity _is_ accounted for along Glacier's 122 miles of roads.

Litter collection along roads is measured in units of 32-gallon barrels. The following table lists the FY 1979 (October 1, 1978 to September 30, 1979) roadside litter collection:

Month	# of 32-gallon barrels collected
October	89
November	17
May	177
June	475
July	692
August	690***
September	319
Total	2,459

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*Billings also reported street sweeping expenses of $118,000 and estimated that one-half of this amount could be ascribed to litter pickup. This amount is not included in the above figure.

**The Superintendent of Missoula's Parks and Recreation Department, Gary Kryazak, told the writer that Missoula incurs expenses in litter control, collection, and disposal but could not give an estimate of those expenses. Phone conversation, October 25, 1979.

***Estimate.

Maurice Gingery, GNP Facilities Manager, estimates that the Park's costs for collecting roadside litter averages $5.00 per barrel.* The cost estimate for collecting and disposing of 2,459 barrels is therefore $12,295.

Glacier National Park's roadside litter collection of 2,459 barrels for FY 1979 represented a 21% increase from FY 1978. This was even more significant in light of a nearly 11% reduction in visitors during 1979.

BLM

The U. S. Bureau of Land Management does not identify litter collection/disposal costs in their accounting system. Bureau officials said that litter was a problem but that the collection and disposal activity could not be singled out.**

Clark Whitehead, BLM Recreational Planner for the Wild and Scenic Rivers portion of the Missouri, reported that the litter collection and disposal activity along the 149 miles of the Missouri policed by his agency was $12,800 in FY 1979.***

Summary ****

Expenditures Reported for Litter Control, Collection, and Disposal

State Department of Highways FY 1977-78	$273,681.61
Department of Fish, Wildlife, & Parks FY 1979	118,450.00
4 Counties	1,500.00
4 Cities	138,590.00
Glacier National Park	12,295.00
BLM	12,800.00
Total	$557,316.61

To reiterate, these figures do not represent the total statewide costs of litter control, collection, and disposal. More than half of the counties did not respond to the questionnaire, several federal agencies could give no estimates, and private individuals and service clubs were not surveyed. In addition, the figures reported by the agencies (with the exception of the State Department of Highways) represent cost estimates that may not be comparable between agencies.

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*This includes such expenses as supervisory costs, wages, vehicle operation, depreciation, disposal, etc. Conversation with Mr. Gingery, October 25, 1979.

**Conversation with James Owings, BLM Recreation Specialist, Billings, Montana, October 26, 1979.

***Phone conversation, October 29, 1979.

****All questionnaire responses and correspondence regarding litter costs are available in the offices of the Legislative Council.

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DIRECTOR, LEGAL SERVICES

August 8, 1979

Chairman, County Governing Body

Dear Sir:

The 1979 Legislature established a study committee to examine the use, reuse, and recycling of food and beverage containers in the State of Montana. The study committee is currently gathering data and needs your help.

Can you provide the Committee with information on the cost of collecting and disposing of litter* in your county? Cost figures for the most recently available fiscal year would be greatly appreciated. Also, if available, the Committee would appreciate receiving the county litter collection and disposal cost figures for fiscal years 1970 through the most recent fiscal year.

Thank you very much for your help in this study. Please use the enclosed stamped, addressed envelope for your response and call me at 449-3064 if you have any questions.

Sincerely,

Jim Oppedahl
Staff Researcher

* Litter, for the purposes of this survey, should include the cleanup and disposal costs of material not regularly collected and disposed of as a part of the county's garbage collection/disposal service. The costs of the county "Greenbox" system, for example, should not be included in the cost for litter collection but cleanup and disposal of material along county roads and in parks and recreation areas should be included in the cost figures for litter collection and disposal.

Solid Waste Disposal Costs in Small Towns

Several small towns are surveyed in the following charts to give the Committee an idea of current collection and disposal charges in rural areas. Generally, three items were characteristic of small town solid waste management. (1) None of the towns have scales for weighing solid waste; (2) collection and disposal charges are based on collection points or household units but not on tonnage; and (3) none of the towns had financial data available on the entire cost of collection and disposal activity.

Cascade

The town of Cascade (1970 population 714) operates a landfill 2 days a week; patrons transport their own garbage to the landfill. Cascade assesses residential customers $1 per week per household; businesses pay $2 per week. The town landfill has no scales; no estimate of total cost per ton for landfill was available.

Chester

The town of Chester (1970 population 936) operates a landfill 2 days a week, four hours a day. The town's residential patrons are assessed $5 a month for collection and disposal; commercial customers pay $6 per month for each weekly pickup, i.e., $30 a month for 5 pickups per week. County residents who haul their own solid waste to the landfill pay $25 a year for a landfill use permit. The accounting system does not reflect the disposal cost per ton of solid waste.

Roundup

Roundup (1970 population 2,116) maintains a landfill owned by the Bureau of Land Management. The total budget for FY 1978 was $41,450.44. This does not include the value of the disposal site or the cost of the equipment used to collect and dispose of solid waste. The town charges $44 per town lot per year for one weekly pickup. The town landfill has no scales; no estimate of total cost per ton for landfill was available.

The Solid Waste Management Bureau is currently reviewing solid waste management strategies for several regions of the state. In the April 1979 Draft Report for the Lower Triangle (Counties of Cascade, Chouteau, Teton and all incorporated towns therein) estimates are given for small town disposal costs. The per ton estimates vary depending upon the particular disposal plan a town chooses to select. The estimates contained in the Draft Report for disposal costs only are:*

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*Conversation with William Potts, Solid Waste Management Bureau, November 16, 1979.

Town or County	Disposal Option	Estimated Cost Per Ton
Cascade	Landfill	$24.70
	Mini Transfer	32.60
	Mini transfer (with county plan and disposal at Great Falls)	25.60
Dutton	Landfill	96.50
	Mini transfer	36.60
Cascade County (excluding metropolitan Great Falls)	Multiple Landfill	28.00
	Mini transfer (disposal at Great Falls)	25.60
Teton County	Landfill	44.60
	Mini transfer (disposal at Great Falls)	32.50
	Rural containers	36.00

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August 28, 1979

TO: Study Committee on Containers
FROM: Jim Oppedahl, Staff Researcher
RE: Summary of State Solid Waste Management Strategy Report (December 1976)

House Joint Resolution 56 directs the Study Committee on Containers to include within its study "an evaluation of the State Solid Waste Management Strategy Report* (1976)" prepared by the consulting firm of Henningson, Durham and Richardson for the Department of Health and Environmental Services. The following summary is an outline of the relevant findings of that report.[1]

The primary purpose of the Strategy Report project was to develop a comprehensive, implementable, solid waste management plan for the State of Montana. The project involved an 18 month investigation of solid waste management and resource recovery possibilities in the state. Funding was provided by an appropriation from the 1975 Legislature and supplemental funding from the U.S. Environmental Protection Agency. The Strategy Report developed five regional reports and five interim reports relating to population, employment and waste generation, energy and secondary materials markets, alternative technologies and strategies for solid waste management and resource recovery, and a report on special wastes that considered items such as used tires, feedlot wastes, and used lubrication oils.

---

* hereinafter referred to as the Strategy Report

[1] During the 44th Montana Legislature a Model Litter Control Act (HB 425) was introduced by Representative Howard Ellis. When the bill was before the Natural Resources Committee for hearing the sponsor asked that his bill be held or killed pending the findings of the Strategy Report.

FINDINGS RELEVANT TO CONTAINER STUDY

WASTE GENERATION RATES

Ten waste disposal facilities of varying size and at different geographic locations within the state were surveyed to determine the quantity of solid waste generated in Montana. Four of the ten sites were chosen for a solid waste hand-separation program to determine the composition of waste generated. The following chart summarizes the findings.

Population	Waste Generation Rate (pounds/person/day)
Greater than 5,000	5.70
1,000 - 5,000	3.25
Less than 1,000*	2.25

*includes rural population

Cities with populations between 5,000 and 10,000 had waste generation rates which compared quite closely to cities with populations over 10,000. The average percent breakdown by waste type for cities with populations greater than 10,000 was: 41% residential, 41% commercial and industrial and 18% demolition. Cities with populations between 5,000 and 10,000 followed this pattern quite closely.

City populations between 1,000 and 5,000 had a distinct reduction in the total waste generation rate compared to larger cities. This was attributed to the reduction of commercial and industrial waste generation in smaller communities. The breakdown for waste type of such communities was: 79% residential, 13% commercial-industrial, and 9% demolition.

Rural areas had the lowest average waste generation rate since primarily only residential type wastes are generated in such areas.

In addition to assessing the 1975 waste generation rates for the state (an average of 4.28 pounds per person per day for all residents of the state) the Strategy Report projected a future waste generation tonnage increase of 36% by 1990.[2]

WASTE COMPOSITION

The Strategy Report examined the composition of waste generated in four Montana cities - Missoula, Butte, Billings and Great Falls.[3]

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[2] H,D & R, Population, Employment and Waste Generation Report, passim, pp III-1-III-13. Hereinafter H, D & R, Population.

[3] The Strategy Report noted that the procedure for obtaining and separating the samples was as follows:

"Packer truck drivers were interviewed to determine the origin and type of wastes they had collected. The driver was then directed to dump his entire load of refuse adjacent to the normal filling operation. By use of a front loader, the deposited refuse was then mixed thoroughly. After mixing, the front-end loader operator obtained approximately a one cubic yard sample from the center of the refuse which was then hand separated into the following materials:

Non-Combustibles	Combustibles
Ferrous	Paper
Aluminum	Cardboard
Glass	Plastic
Other	Wood
	Yard Wastes
	Textiles
	Food
	Other

Each material was then weighed to determine its percent composition by weight. ... The sample data obtained from the four cities was then averaged and seasonally adjusted to take into account the fact that park and yard wastes are generated predominately between the months of April and October.

The seasonally adjusted composition data was then compared to the data published by the EPA and NCRR. ... The waste composition in Montana compares quite closely to the nationally published data. The largest discrepancies occur in the percentages of plastic and food type wastes. Because scrap ferrous and aluminum are in demand, the percentage of these materials in the solid waste stream is important. As shown, the percentage of metals in the four Montana cities sampled compared quite closely to nationally published data.

The results of the survey were:

WASTE COMPOSITION COMPARISON
(Percent by Wet Weight)

WASTE TYPE	MONTANA ADJUSTED	NATIONAL STUDIES[4]	
		EPA	NCRR
Paper	38.2	37.8	42.7
Plastic	5.8	3.8	1.7
Yard	11.7	14.6	12.5
Food	19.3	14.2	14.6
Glass	8.7	10.0	10.3
Metals	10.6	10.1	9.5
Other	5.7	9.5	8.7
	100.0	100.0	100.0

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[3] (cont.)
The composition data depicted in Tables IV-1 through IV-3 represents only the wastes hauled to the respective disposal sites by packer trucks. All other wastes hauled to the disposal site during each surveillance were specifically categorized by waste type by the interviewer. To obtain a complete breakdown of all wastes hauled to the Billings, Butte and Great Falls disposal sites, the average solid waste sampling data obtained in each city was incorporated into each city's disposal site surveillance data by substituting each city's solid waste composition data for all wastes which were hauled to the disposal site by packer type vehicles. A computer program was developed which utilized the sampling and surveillance data to give a complete physical breakdown of all the wastes hauled to the Billings, Butte and Great Falls disposal sites." H, D & R, Population, pp IV-2 & 3
The H, D & R consultants indicated to the writer that beverage and food containers were not individually counted or reported during the survey.

[4] Environmental Protection Agency and National Center for Resource Recovery studies.

PROCESSABLE WASTES

Based upon waste generation and composition data developed in the Strategy Report an estimated quantity of processable wastes by material type was determined for the State of Montana. The following chart presents the findings.

WASTE COMPOSITION AND QUANTITIES[5]

Waste Type	Percent By Weight	Tons per Year 1975	Tons per Year 1990
Combustibles			
Paper	25.0	115,398	157,154
Cardboard	10.0	46,159	62,862
Other	42.0	193,869	264,018
Sub-Total	77.0	355,426	484,034
Non-Combustibles			
Ferrous	7.9	36,465	49,661
Non-ferrous	1.3	6,001	8,172
Glass	5.7	26,311	35,831
Other	8.1	37,389	50,918
Sub-Total	23.0	106,160	144,582
Total	100.0	461,592	628,616

The processable wastes in 1975 (461,000 tons) represented approximately 78% of the total waste generated in Montana in the same year (590,000 tons).

WASTE DISPOSAL COSTS

The cost for direct disposal of waste in a sanitary landfill varies greatly in the state according to the Strategy Report. The report notes that "the cost per ton for direct disposal has an inverse relationship to the quantity of waste being disposed of. For example, the cost per ton to operate a sanitary landfill serving a population of 200 varies from $189 to $124 depending on whether the landfill is open five days or two days per week. This compares to a cost of approximately $2.50 per ton for a sanitary landfill serving a population of 100,000."[6] The Strategy Report does not give an average cost per ton for direct disposal of wastes for the entire state.[7] The charts on pages A-28 , A-29, and A-30 indicate the relationship between tons of waste generated per week and the cost for each ton.

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[5] Does not include non-processable wastes such as earth and fill material, bulky materials and construction-demolition debris.

RECOMMENDATIONS OF THE STRATEGY REPORT

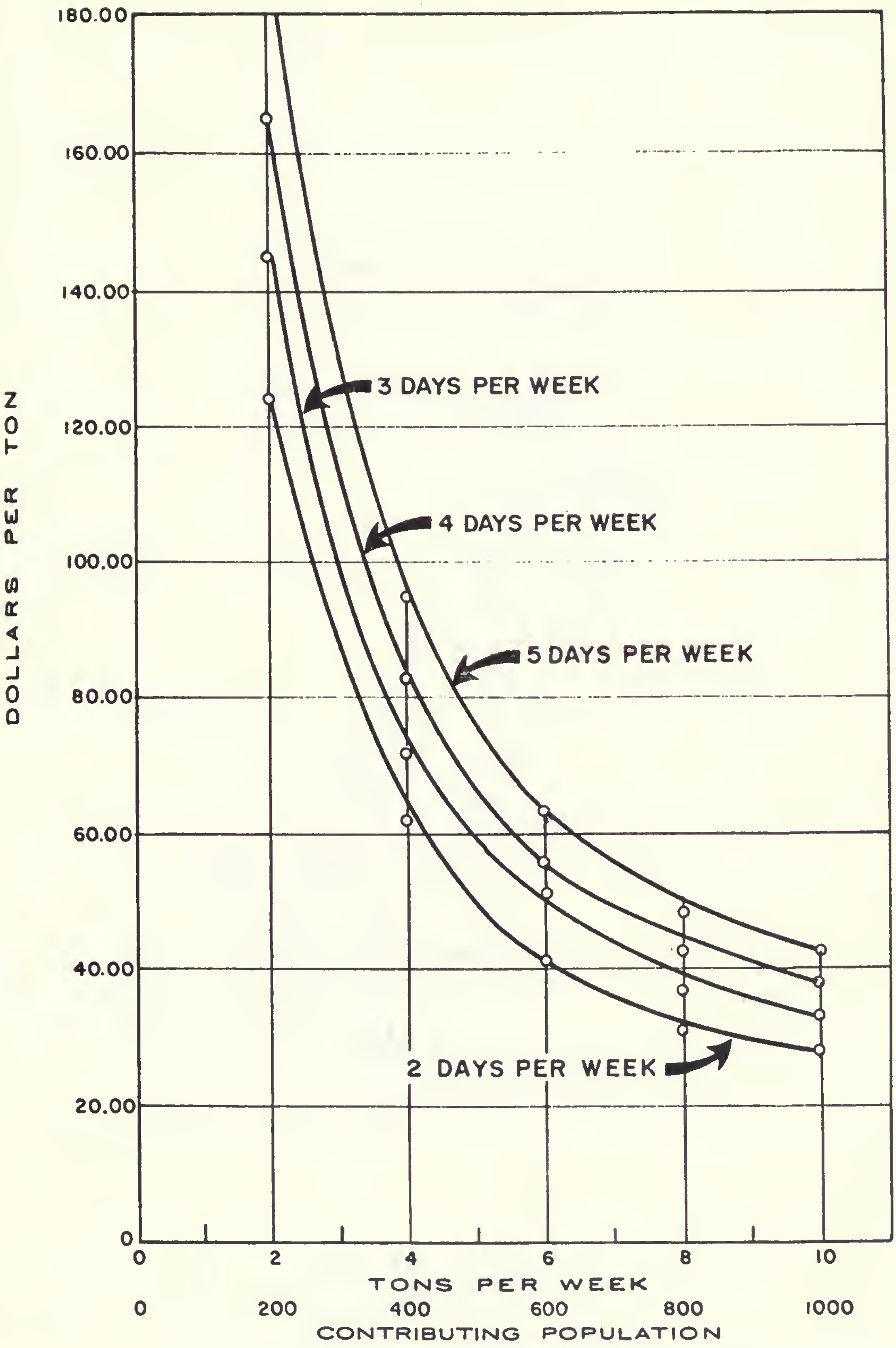
The primary goal of the Strategy Report investigation was to arrive at a cost effective, comprehensive, implementable solid waste management plan for the State of Montana. The background information necessary for the development of such a plan involved surveys of existing solid waste generation rates, quantities, composition, and so forth. In addition, the Strategy Report surveyed market conditions for secondary materials such as recoverable ferrous and non-ferrous materials, glass and newsprint to determine the economic value of such materials in a resource recovery operation. The use of combustible solid waste as an energy source was investigated, as were potential consumers of such energy.

The major recommendations of the Strategy Report were that the 227 disposal facilities in operation in the state in 1975 should be replaced with 43 areawide sanitary landfills and three resource recovery facilities. The 46 facilities were to be strategically

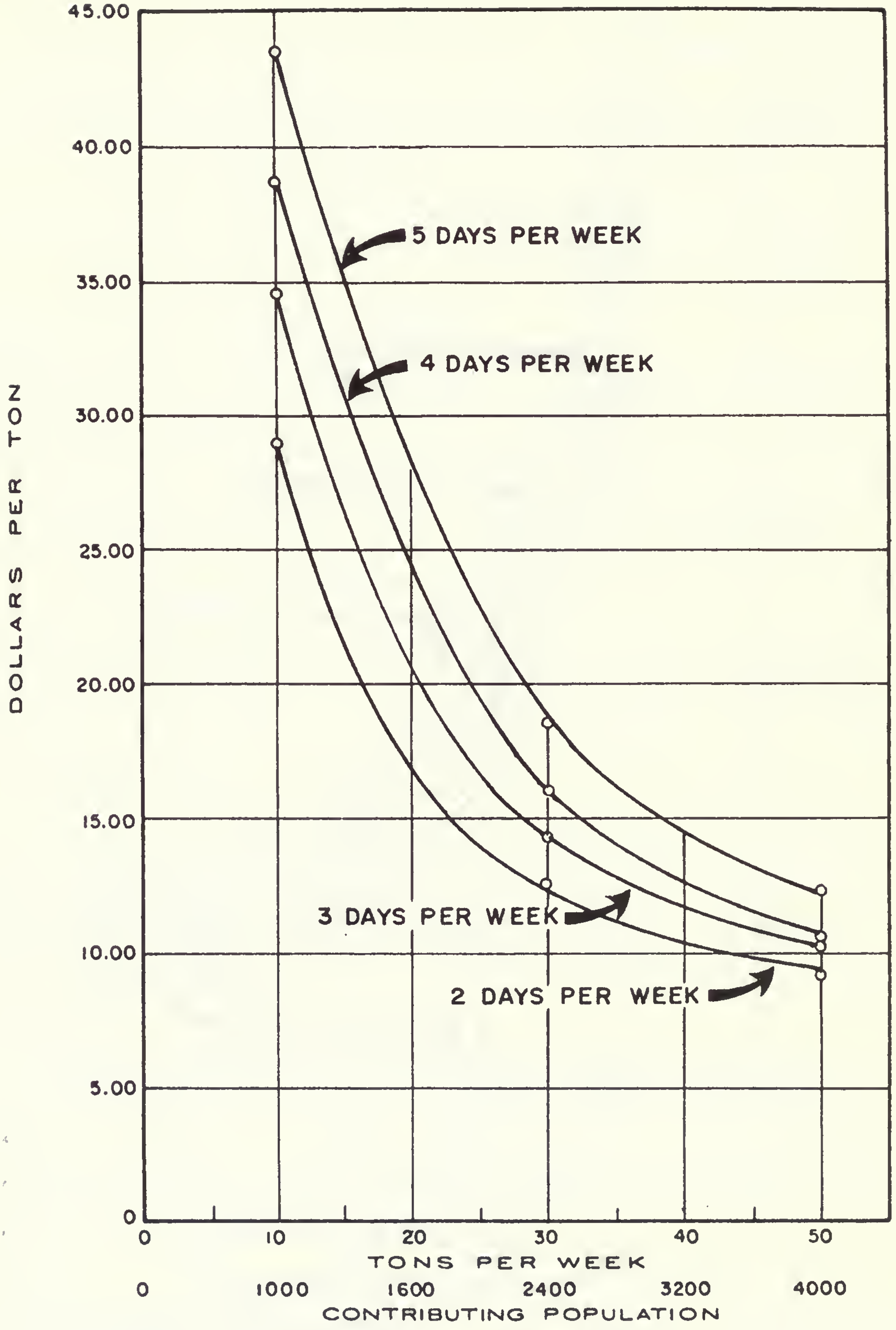
---

[6] H, D & R, Solid Waste Management Strategy: Executive Summary, P.4. The H, D & R consultants noted that "at the present time very few waste disposed sites in the state practice covering the waste at the end of each day. Thus, the actual disposal costs which are being incurred at the majority of the disposal sites in the state are substantially less than those shown in this report." H, D & R, Alternative Technologies Report, summary.

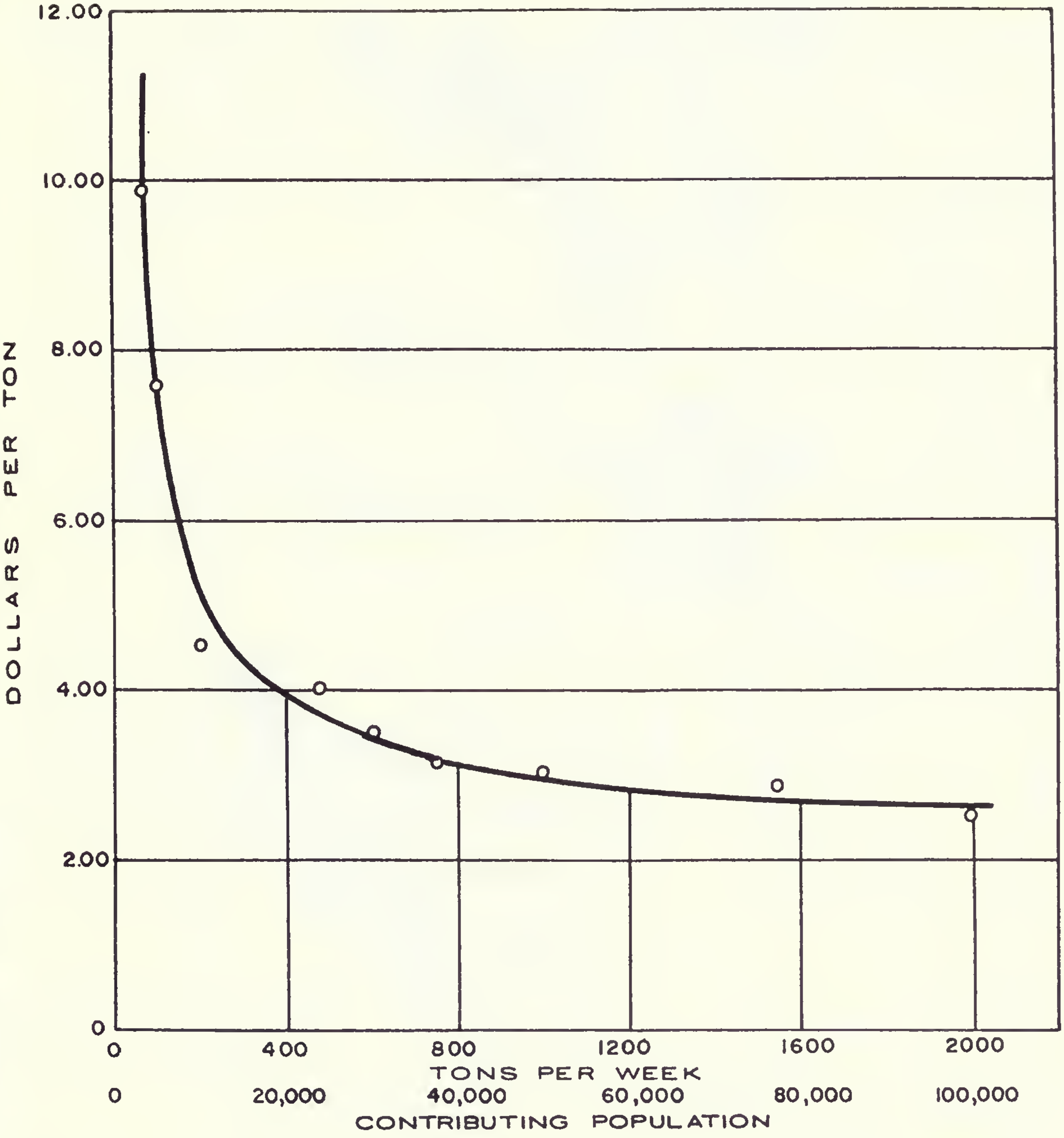
[7] Duane Robertson, Chief, Solid Waste Management Bureau, told the writer that the cost variables for direct disposal are so great that a single average is probably not possible nor realistic. Phone conversation August 28, 1979. The EPA estimates that the average cost for collection and disposal of post-consumer municipal solid waste in 1976 was close to $30 per ton. EPA, Fourth Report to Congress, Resource Recovery and Waste Reduction (Washington, D.C.: 1977) p.4.



SANITARY LANDFILL COSTS
2 - 10 TONS PER WEEK



SANITARY LANDFILL COSTS
10 - 50 TONS PER WEEK



SANITARY LANDFILL COSTS
50 - 2000 TONS PER WEEK

located to provide least cost service to multi-jurisdictional service areas. The potential resource recovery facilities were to be located in Billings, Great Falls, and Missoula (see map, page A-32.)

The total projected costs for the recommended facilities were as follows:

ESTIMATED FRONT-END PLANNING COSTS

(1) 3 Resource Recovery Projects	$225,000		
(2) 43 Areawide Sanitary Landfills	$715,000	to	$1,550,000
TOTAL	$940,000		$1,775,000

ESTIMATED FRONT-END ORGANIZATIONAL COSTS

(1) 3 Resource Recovery Projects	$1,800,000		
(2) 43 Areawide Sanitary Landfills	$3,100,000	to	$4,770,000
TOTAL	$4,900,000		$6,570,000

ESTIMATED FACILITY CAPITAL COSTS

Planning Region	Sanitary Landfills	Resource Recovery[1] Systems	Total
I	$910,000	-	$910,000
II	636,000	$2,800,000-$7,800,000	$3,435,000-$8,435,00
III	395,000	2,800,000-$8,300,000	3,195,000-$8,695,00
IV	1,315,000	-	1,315,000
V	410,000	2,800,000-$8,000,000	3,210,000-$8,410,00
TOTAL	3,665,000	$8,400,000-$24,100,000	$12,065,000-27,765,00

SUMMARY

So, you ask, what does all this have to do with the study on beverage and food containers? Specifically, how should the study committee view the Strategy Report in relationship to the container study?

The Strategy Report has relevance to the container study in several areas First, it is the only comprehensive treatment of solid waste management in the state available to the committee. As such, it represents an outline of options for dealing with the total management of solid waste in

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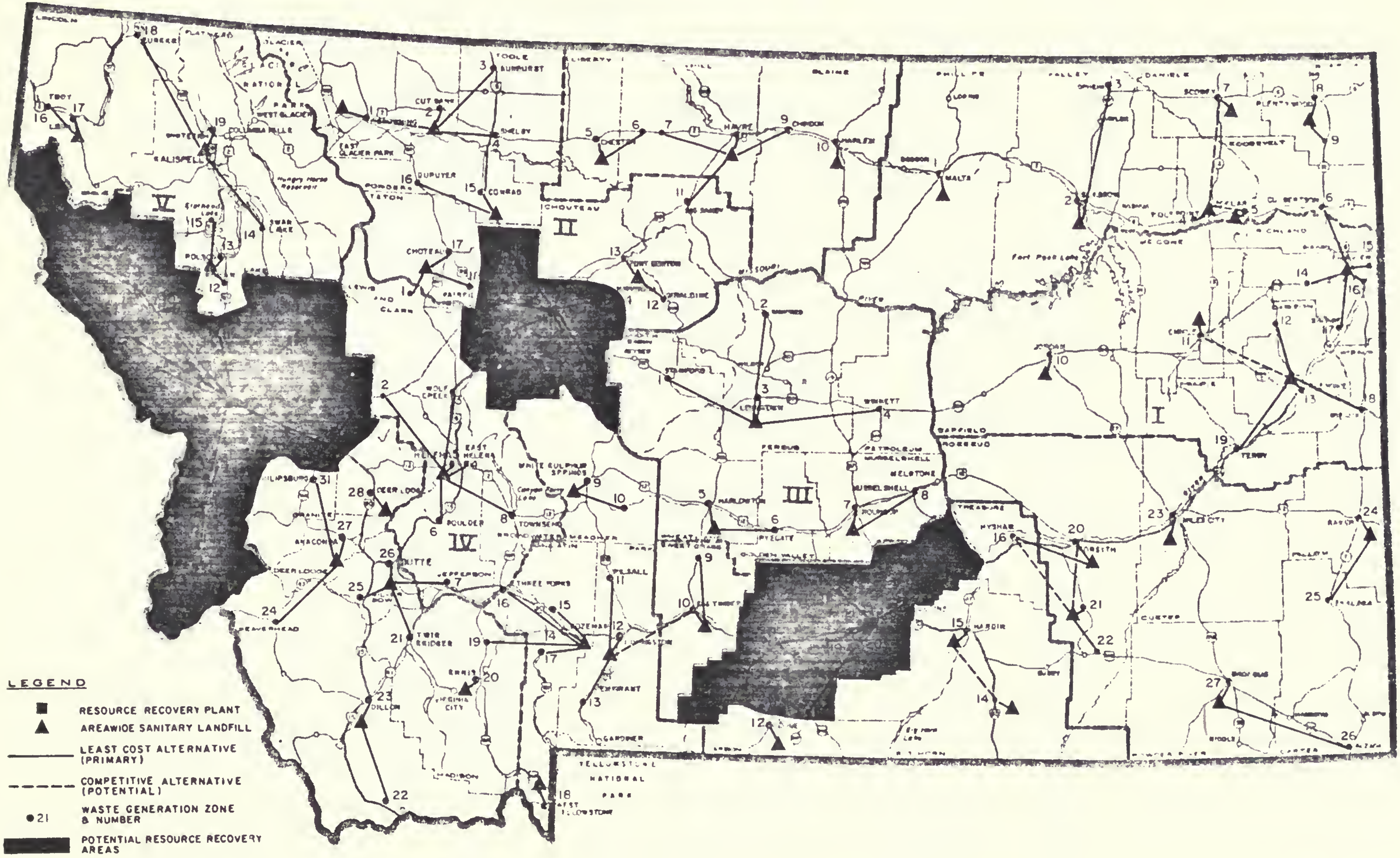
[1] Two cost ranges were estimated for the resource recovery facilities. The lower cost is for a processing facility that would produce marketable refuse derived fuel. The higher cost is for a solid waste processing facility and a steam plant.


LEGEND
RESOURCE RECOVERY PLANT
AREAWIDE SANITARY LANDFILL
LEAST COST ALTERNATIVE (PRIMARY)
COMPETITIVE ALTERNATIVE (POTENTIAL)
WASTE GENERATION ZONE & NUMBER
POTENTIAL RESOURCE RECOVERY AREAS
I
II
III
IV
V

LEAST COST FACILITY CONFIGURATION

the state. Many opponents of container legislation argue that the most appropriate role of the Legislature in this regard is to encourage and implement programs of resource recovery and waste reduction that deal with the entire problem of solid waste. Under this approach, they argue, containers will be recovered and recycled along with all other processable waste. Proponents, on the other hand, argue for an immediate albeit incomplete, resource recovery and waste reduction program--followed by the implementation of more comprehensive solutions. Both groups, therefore, consider the goal of a solid waste management plan as outlined in the Strategy Report as important. They differ, however, in their views as to when such a system will be implemented, and what to do in the meantime.

The cost projections of the Strategy Report are important considerations for the container study in light of the above. They give a rough idea about the cost of this approach and the benefit that could be derived by consolidation of landfill disposal and resource recovery activity. The cost/benefit data also provides an important indication of the initial and long term financial commitments necessary for such an approach and a measure of when such a system would be operational.

Finally, the Strategy Report is a useful compendium of data regarding solid waste generation rates, quantity, and composition in the State of Montana. The data should be useful to committee members as background for assessing legislative alternatives.

Please contact me at 449-3064 if you have further questions regarding the Strategy Report.

The following report was sent to the Study Committee on Containers in a Staff Memorandum dated October 24, 1979. The material represented a summary of energy studies relating to beverage container systems. It was taken from a report done by the Michigan Public Service Commission and entitled, "Economic Analysis of Energy and Employment Effects of Deposit Regulation on Non-Returnable Beverage Containers in Michigan."

CHAPTER IV

Comparative Analysis of Energy Savings Due to Returnable System Compared to the Present System

4.1: Introduction

The primary purpose of this chapter is to investigate the probable energy savings that would occur, if any, as a result of a policy change to a returnable system, compared to the current situation in Michigan. America faced an energy shortage which has already been and will continue to worsen during the next decade unless technological developments are expected to alleviate, followed by the reduction in energy waste in different sectors of the American economy without considerable reduction in the life styles of its population. The state of Michigan is particularly volnerable to energy shortages since Michigan derives almost 92 percent of its energy needs from other states of the nation. Therefore, it is imperative to consider the energy usage patterns of the current beverage containers system and to evaluate the energy impacts of alternative systems; "only a small fraction of 1% of total United States energy consumption is used for beverage packaging."(1) Whatever savings that would accrue due to a returnable system are welcomed as it would add to the preservation of natural resources for future use.

4.2: Fairly extensive research has been done between 1968 and 1974 by numerous research organizations, private agencies, industrial groups, universities and governmental agencies to assess the energy and environmental impacts of beverage container consumption. Most of these studies focused only one aspect of the problem, such as manufacture of the containers, or transportation of the containers to retailers, or the development of a new container, such as plastic shield bottles and light-weight cans, etc. The latest study of New York State, "No Deposit, No Return," focused on all of the facets of the beverage container problem at considerable length: the beverage container portion of the solid waste, litter, employment, energy and environmental impacts and, finally, the resource recovery aspects of the beverage containers.(2) However, six of these studies analyzed the energy and environmental impacts of the beverage container industry in a more systematic and complete way.(3)

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(1) Statement on Energy Required for Beverage Containers - by Dr. John W. McNabb Feb. 20, 1973 - unpublished manuscript.

1. Midwest Research Institute (MRI): Resource and Environmental Profile Analysis of nine beverage container alternatives for the U.S. Environmental Protection Agency, Final Report, 1974.
2. Hannon, Bruce: System Energy and Recycling: A study of the beverage industry, center for advanced computation, University of Illinois, January 5, 1972, Revised March 17, 1973.
3. Haller, Garry L.: "Resource Utilization and Environmental Impacts on Environmental Impact of Nitrile Barrier Containers LOPAC: A Case Study; July 19, 1973 (preprint).
4. G. Sundstrom, A.B.: Beverage Container and Energy, Rigello, Sweden; 1974.
5. John W. McNabb: Statement on Energy Required for Beverage Containers (preprint).
6. Leon Katz: Energy and Technical Development; American Can Company, November 7, 1974.(preprint).

While analyzing the energy impacts, each study defined its own assumptions and techniques to arrive at the final results depending on the size and type of containers systems, and the process knowledge and technical aspects of the beverage industry as a whole. The first four of the six studies were reviewed by the technical experts who conducted the New York State Study - "No Deposit, No Return." This analyst agrees with their review. The New York State reviews of the first four studies listed above are presented below:

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(2) No Deposit, No Return - A report on beverage containers - Task Force on Critical Problems, New York State Senate, Albany, New York, Feb., 1975.

(3) Another study, "Environmental Impact of 12-Ounce capacity "Soft Drink Systems" (unpublished), by the Stanford Research Institute for the Glass Container Manufacturing Institute, not available for review.

MIDWEST RESEARCH INSTITUTE STUDY

This study, entitled "Resource and Environmental Profile Analysis of Nine Beverage Container Alternatives," encompassed seven impact factors: virgin raw material use, energy use, water use, industrial solid wastes, post-consumer solid wastes, air pollutant emissions, and water pollutant effluents. These factors were assessed for each manufacturing and transportation step in the life cycle of a container, beginning with the extraction of the raw materials from the earth and continuing through the materials-processing steps, product fabrication, use, and final disposal. The specific container selected for study was a standard 12-ounce beer container. (Resource and environmental profiles of soft drink containers also were provided, although in less detail.) The analysis covered conventional containers such as refillable and one-way glass bottles, and steel-aluminum and all-aluminum cans; it also included somewhat more unusual containers such as plastic-coated glass bottles, plastic bottles, and all-steel cans.

The approach used to carry out the calculations was straightforward. All processes and subprocesses were considered to be separate, independent systems, and a standard unit (1000 kilograms) of output was used for each system. Complete materials and energy balance information was determined for each subsystem, and a master flow chart was developed for each total system, using known process-yield rates, study personnel determined the output of each subprocess needed to produce 1000 kg. of finished containers, and related the materials and energy balances to this level of final output.

To determine energy consumption, the amount of energy (in megajoules; one megajoule = 947.87 BTU's) and the source of energy (oil, gas, electricity) used in each operation, including transportation, were determined for a given output. The energy content of certain organic raw materials was included in energy summations; that used for space heating of buildings generally was excluded. The energy necessary to extract, process, and transport fuels was included, as well as the heat of combustion of the specific fuels used in a system. The energy assigned to electricity use was the energy associated with the consumption of fuels necessary to build the plants, machinery, trucks and other needed facilities and equipment was not considered. (The energy consumed for the various container alternatives are presented in the appendix to Chapter 5.)

BRUCE HANNON STUDY

This study, "Systems Energy and Recycling: A Study of the Beverage Industry," focused on the soft drink industry and covered only energy consumption. (The beer and milk industries were also considered, but to a lesser extent.) The containers considered were refillable and one-way glass bottles, and steel-aluminum cans.

Again, the basic approach consisted of calculating the energy consumed in each step of the process, and combining the different steps required to deliver one gallon of beverage to the consumer. The entire energy consumed, including that required for the extraction of raw materials and fuels, the manufacturing processes, the transportation, and the disposal of the waste generated, was totalled for each container considered. Heating and lighting also were included, but potential energy recovery from the waste stream was excluded. Finally, secondary energy consumption necessary to build the plants, machinery, trucks and other needed facilities and equipment was not considered. The results are presented in Table 4.1 below.

TABLE 4.1

Energy Consumption by Type of Beverage Container

everage	Material	Refillable/ Non-Refill.	On Premise/ Off Premise	No. of Trips for Refill.	Contents (Ounce)	Total Energy Consumption (Mill. BTU's/ Thous. Gallons
eer	Glass Bottle	Refillable	-	19 trips	12	19.64
eer	Glass Bottle	Non-Refill.	-	-	12	59.80
eer	Steel-Alum.	Non-Refill.	-	-	12	58.19
oft Drink	Glass Bottle	Refillable	-	15 trips	16	24.24
oft Drink	Glass Bottle	Refillable	-	8 trips	16	27.20
oft Drink	Glass bottle	Non-Refill.	-	-	16	65.34
oft Drink	Steel-Alum. Cans	Non-Refill.	-	-	12	58.22

The recycling and reuse options were also analyzed, taking into account different levels of recycling for glass and steel and different trippage rates for refillable glass bottles. On the basis of his findings, Dr. Hannon concluded that "if the beverage industry were converted entirely to returnable and reusable containers, the 1970 container system energy, which accounts for 0.48 percent of the total U.S. energy demand, would be reduced by about 40 percent." However, the study itself does not indicate how this result was obtained.

GARRY HALLER STUDY

Basically, this study on "Resource Utilization and Environmental Impacts of Alternative Beverage Containers" compared a new product, Lopac Containers,* with glass bottles, aluminum cans, and steel-aluminum cans in terms of material consumption, energy use, and pollutant emissions. The data developed related to the manufacture of the finished containers but did not consider the distribution process (i.e., filling, packaging, and transportation). Again, an energy and material balance was calculated for every process in the manufacture of a given container. The different processes were followed from the wellhead and the mine through the actual manufacture of the container. According to the author, the energy consumed to produce the alternative containers was estimated within a 10 percent error; the results are printed in Table 4.2 below.

TABLE 4.2

Energy Consumption by Type of Container (Manufacturing Only)

Beverage	Material	Refillable/ Non-refill.	On Premise Off Premise	No. of Trips for Refill.	Contents (Ounce)	Total Energy Consumption (Mill. BTU's Thous. Gallc
Soft Drink	Glass Bottle	Non-Refill.	-	-	10	44.80
Soft Drink	Glass Bottle	Non-Refill.	-	-	32	34.56
Soft Drink	Steel-Alum.	Non-Refill.	-	-	12	46.08
Soft Drink	Aluminum Can	Non-Refill.	-	-	12	89.60
Soft Drink	Lopac bottle	Non-Refill.	-	-	10	48.64
Soft Drink	Lopac Bottle	Non-Refill.	-	-	32	34.56

* Lopac (now called cycle safe) is a trademark of Monsanto Company. It is a plastic bottle made from a molecularly oriented acrylonitrile styrene copolymer.

A.B. SUNDSTROM STUDY

The study, "Beverage Container and Energy," analyzed the total energy requirements for four packaging processes from raw material mining to garbage treatment, in the Swedish beer industry. The four packaging alternatives were refillable and non-refillable glass bottles; steel-aluminum cans, and Rigello bottles.* In addition, two alternative types of garbage treatments were studied, garbage incineration with energy recovery and deposition with pre-treatment of crushing. The results of this study are presented in Table 4.3.

JOHN W. McNABB STUDY

This study entitled "Statement on Energy Required for Beverage Containers" does not embrace the total system, i.e., from the production of basic raw materials through to distribution, recycling and disposal. The study emphasizes that it is unnecessary to focus on the energy consumption aspects of beverage containers that use only a small fraction of one percent of total United States energy consumption and further argues that it is unrealistic to describe the beverage container problem as a problem of energy utilization. The real problems with energy consumption lie in other areas wherein considerable savings could be obtained: (1) improving insulation of commercial buildings and residences, (2) developing mass transportation, (3) developing more efficient automobile engines, (4) developing more efficient energy conservation processes for electrical power.

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* Rigello is a trademark of Rigello Par AB. The Rigello bottle is made of polyvinyl-chloride/polyvinyldichloride with an outer paper sleeve. This bottle was introduced on the Swedish market in 1971.

TABLE 4.3

Energy Consumption for the Beer Container System

Beverage	Material	Refillable/ Non-Refill.	On Premise/ Off Premise	No. Trips for Refillable	Contents (Ounces)	Carbon Treatment	Total Energy Consumption (Mill. BTU's) Thousand Gal.
Beer	Glass Bottle	Refillable	On Premise	19	11.2	Incineration	12.11
Beer	Glass Bottle	Refillable	On Premise	19	11.2	Landfill	12.24
Beer	Glass Bottle	Refillable	Off Premise	8	11.2	Incineration	15.89
Beer	Glass Bottle	Refillable	Off Premise	8	11.2	Landfill	15.95
Beer	Glass Bottle	Non-Refill.	-	-	15.2	Incineration	41.78
Beer	Glass Bottle	Non-Refill.	-	-	15.2	Landfill	42.65
Beer	Steel-Alum. Can	Non-Refill.	-	-	15.2	Incineration	28.66
Beer	Steel-Alum. Can	Non-Refill.	-	-	15.2	Landfill	31.49
Beer	Rigello Bottle	Non-Refill.	-	-	15.2	Incineration	17.17
Beer	Rigello Bottle	Non-Refill.	-	-	15.2	Landfill	21.86

The study casts grave doubts with regard to the published quantitative work on the beverage container problem, on the pretext that "they seek to measure solely the relative amounts of energy use (i.e., number of BTU's consumed), and do not take into account qualitative factors. By qualitative factors I mean such things as the scarcity of the particular energy source involved, the environmental impact of the use of a particular energy source, and the other ecological impacts from a change in the beverage system. For example, during the next decade, petroleum will be the most critical source of energy supply, and a change over to an all returnable container system will require additional transportation and have greater demand for diesel oil and gasoline which will be in short supply."

Dr. John W. McNabb concludes, after making a step-by-step analysis on additional transportation fuel required in the brewing industry and industrial wastes associated with a change from non-returnable bottles and cans to returnable bottles, that even accepting the published works at face value, the supposed energy savings are negligible percentage wise; secondly, since the energy savings alleged to be available by conversion to an all-returnable system depend upon trippage, it may well be that there will be no energy savings and possibly greater energy consumption; third, even if there are savings in energy due to a shift to returnables, these may be offset by the qualitative aspects of a change and its total impact on the environment. Finally, if the effect of the change in the beverage system is to divert spending from beverages to other consumer products, the effect may also be an increase in energy consumption.

Dr. John W. McNabb points out several inconsistencies in Dr. Hannon's quantitative computations on energy ratios by saying that they should be regarded as "order of magnitude estimates" rather than exact values upon which to base decisions affecting a number of industries. He further comments that "in his attempt at a quantitative analysis, Hannon has not or may not have included certain energy consumptive factors in a returnable system. For example, he has apparently overlooked the following,

1) The energy required to cool the various containers at the retail outlet and in the homes. (The returnable bottle is at a distinct disadvantage in this respect when compared to the less massive can or non-returnable bottle.)

2) The energy required to heat the additional storage space for full and empty containers necessitated by a returnable system.

3) The energy to operate the additional vehicles required by the wholesaler under an all-returnable system.

4) The energy required to make special trips by the wholesaler to pick up empties from the retailers.

5) The energy required to produce and deliver the additional paper products necessary to market returnable bottle beer in six-pack containers.

However, not all criticism levelled against Dr. Hannon is relevant. In fact, Dr. Hannon's analysis is considered to be a valid analysis as the results come close to the recent MRI study, "Resource and Environmental Profile Analysis of Nine Beverage Container Alternatives."[4] Even Dr. McNabb admits that "while quantitative estimates of each of these energies would be difficult to make, they should not be regarded as negligible in the content of an attempted quantitative analysis such as Hannon's."

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(4) Dr. John W. McNabb - Statement on Energy Required Beverage Containers. Feb. 20, 1973, p. 12.

In fact, Dr. McNabb should have conducted a complete analysis by using the Illinois data base, rather than following the national packaging mix, just as Dr. Hannon did. While discussing the trippage, Dr. McNabb says "if to save 40%, all of the beer containers must have a trippage of 19, it is obvious that the savings, if any, will be greatly less than 40% if the trippage is only 3.1 to 5.5, or even if the trippage were to be as good as 6 to 8." It is unfortunate that Dr. McNabb has not investigated the historic patterns of trippage. The following data on the trippage rates are taken from the national beverage industry annual manual 1973-75 and are provided below to assess the validity of McNabb's criticism of Dr. Hannon.

TABLE 4.4

No. of Fillings per Returnable Bottles Sold - U.S.

	BEER		SOFT DRINKS	
	*	**	*	**
1964	31.0	25	17.0	16
1965	27.0	20	17.0	17
1966	23.0	17	16.0	16
1967	16.3	18	15.0	15
1968	21.4	23	14.7	15
1969	22.5	24	13.9	18
1970	32.1	29	13.0	16
1971	32.0	11	13.0	18
1972	32.0	20	13.0	13
1973	32.0	15	13.0	16
1974	32.0	22	12.5	16
1975E	31.5	N.E.	12.5	N.E.
1976E	31.5	N.E.	12.0	N.E.
1977E	31.5	N.E.	12.0	N.E.

Source: Beverage Industry 1973-1974 Annual Manual, p. 44
N.E. = Not Estimated
E = Estimates by the Beverage Industry
* = Beverage Industry estimates
** = Michigan State Energy Office estimates

As one can see, the trippage rates (excluding 1967) for beer returnable bottles have been higher than 19. As such, Dr. Hannon's estimates are quite valid and worthy of recognition.

DR. LEON KATZ'S STUDY

This study on "Energy and Technical Development" focuses on the important issue of the role of technology. The earlier studies dealt with the currently available containers and neglected to project the possible impact of technology on the specific system. Because changes in technology are rapidly occurring in the packaging industry and industries tangential to packaging, the energy component of the previous studies has been extended by Dr. Katz to reflect the energy impact of new technology.

The study focuses primarily on two things: (1) Impact of new technology in reducing the energy consumption by 1980 and (2) Percentage of energy in a particular packaging system attributed to raw material acquisition. Dr. Katz's study of "Energy and Future Technology Impact" starts with the data already developed for the basic processes involved in the manufacture of containers. In each case the study provides precise specifications for each container in the respective container system. Throughout the study, BTU's/M containers as the energy measure have been used. The study deals only with the standard 211 x 413 metal container for 12 oz. of beer and the corresponding 12 oz. size bottle in either plastic or glass. The following containers were selected for study.

(1) Aluminum drawn and ironed can

(2) Steel drawn and ironed can

(3) One-way glass bottle

(4) Returnable glass - 10 trips

(5) Plastic bottle

In each instance as the starting package, it was assured that each container system was being sold as a six-pack in paper board outer package. This was done for comparing values with those available in earlier studies. In order to analyze the energy impact of new technology, six primary categories of the energy system were outlined. These are:

(a) Body material

(b) Closure material

(c) Container manufacture

(d) Filling and packaging

(e) Transportation to retail and waste reclaiming, when applicable.

The results of the study are summarized below.

TABLE 4.5

Energy in MM BTU's/M Containers for 12 oz. Beer Container System

	1974	1980	% Reduction
Aluminum 2-piece	7.20	3.36	53.3
Steel 2-piece	3.91	2.49	36.3
Plastic	4.96	3.32	33.1
Glass Non-Returnable	4.81	4.06	15.6
Glass 10-trip Returnable	2.60	2.44	6.2

Source: Energy and Technical Development - Leon Katz, PP (2)

The percentage of energy reduction in the beer container systems that the technology would bring are estimated to be more than 53% in aluminum, 36% in steel, and plastic takes third place with 33%, and minimum reductions in glass container systems. It is to be observed that the relative order of the least energy intensive system changes, steel containers, are equivalent to the returnable glass bottle, which is assumed to make ten trips. Further, the spread in absolute energy between major systems narrows considerably.

The study has pointed out that the reductions in energy are accomplished by the following:

(1) Source Reduction - Each system makes use of 15-20% less raw materials/M units.

(2) Resource Recovery - A level of 50% recycle through municipal waste management systems is assumed to have been attained.

(3) New process technology in container manufacture - The use of water base and/or ultraviolet cured coatations minimizes energy consumption.

(4) Less paperboard - In the case of metal and plastic containers, six-pack paperboard outer packaging is eliminated.

The study provides estimates on the enormous use of energy in the basic raw materials processing. For example, in the case of aluminum can manufacturing, about 85 percent of the total energy was used in the reduction of aluminumoxide ore to make the metal sheet for the body and closure. The following table provides the percentage use of energy in the packaging system attributable to raw material acquisition.

TABLE 4.6

Percentage Use of Energy in Packaging Systems Attributed to Raw Material Acquisition

	1974
Aluminum 2-piece	85
Steel 2-piece	70
Glass Non-Returnable	74
Glass 10-trip Returnable	48
Plastic	63

The table shows that about 70 percent of the energy involved in the steel drawn and ironed can system resides in refining the ore to the sheet metal for body and closure. This study further points out that the energy necessary for the glass container system is of the high order since this is the energy necessary to melt the inorganic material to form the molten glass. Reduction of energy for the 1980 container comes primarily from the assumption that the Kerr-Heye Lighter Weight Bottle Process will be commercial and allows a 20 percent savings in glass per unit.

The details of the energy computation for each system are summarized in Table 4.7.

TABLE 4.7

Energy Details - MM BTU/M 12oz. Cans or Bottles - 1974 Total

System Category	Aluminum D & I Can	Steel D & I	1-way Glass Bottle	Refil.-10 Trips Bottle (per trip)	Plastic Bottle
Body Material	4.610	2.187	.415	.090	3.055
Closure Material	1.448	.559	.114	.114	.114
Container Mfg.	.485	.496	3.278(3)	1.059(5)	.776
Fill and Package	.610(1)	.614(2)	.749(4)	.978(6)	.855(7)
Transp.Retail & Waste	.046	.052	.249	.354	.163
Re-claim	.000	.000	.000	.000	.000
TOTAL	7.153	3.908	4.805	2.595	4.963

D & I - Drawn and Ironed.

(1) .474 MM BTU's/M Cans are attributable to paper content for packaging.

(2) .474 " " " " " " " " " .

(3) .245 " " " " " " " " " .

(4) .448 " " " " " " " " " .

(5) .541 " " " " " " " " " .

(6) .488 " " " " " " " " " .

(7) .692 " " " " " " " " " .

SOURCE: Dr. Leon Katz - Energy and Technical Development. Tables VI, IX, XIII, XVI & XI

COMPARISON OF THE STUDIES

The approach used in each study (except Dr. McNabb's) was essentually the same. The entire process, from mining of the raw materials through the final delivery and disposal of the container, was considered in a sequential process (with the exception of the Heller Study which did not consider the filling, packaging, and distribution steps). Each process was intensively studied separately and the energy and raw material flows were described in detail. Finally, the total energy and material for a given level of final output were obtained by adding the sub-totals of each process. The only problem is that these studies were done at different points in time during which technological advancements have been taking place in the laboratory. As such, there exists a small percentage of bias involved in their relative assessment. However, they are valuable since the impact of technological advancements during 1968-1974 do not prevent a comparison between the estimates of these important and highly valuable studies. A relative comparison of three of the above studies are detailed in Table 4.8.

TABLE 4.8

Comparison of Energy Consumption Results
(Million BTU's/ 000 Gallons of final Delivery)

	MRI	HANNON	KATZ
Beer: Refillable Glass Bottle - 19 trips on premise (12oz.)	15.90	19.64	27.69*
Beer: Non-refillable Glass Bottle (12oz.)	64.38	59.80	51.27
Beer: Steel - Aluminum Can (12oz.)	53.73	58.19	41.70
Beer: All Aluminum Can (12oz.)	N.A	N.A	76.32
Soft Drink: Non-refillable Glass Bottle (12oz.)	70.68	65.34	N.A
Soft Drink: Steel - Aluminum Can (12oz.)	53.23	58.22	N.A

* Does not specify whether it is for 'on premise or off premise' and the original calculations were based on 10 trips (but per trip basis). However, the Katz results were brought up to common base of 1000 gallons.

FINAL SUMMARY OF THE REVIEW OF ENERGY STUDIES

The differences in the estimated results of these studies can be attributed to the varying characteristics of the containers, patterns of usage, secondary packaging, such as paper cartons, wooden boxes or plastic holders used to transport and display the beverages, distribution patterns, climatic conditions, and economic levels of the people, differences in trippage rates between different geographic regions, urban and suburban wage patterns, etc., which makes comparison of energy consumption difficult. However, the most important factors in assessing the validity of the study findings are: (1) the extent to which the data used are, on the average, characteristic of the industry, and (2) the completeness with which each stage of energy consumption was studied.

Evaluating these studies from the point of view of these criteria, the analyst believes that the MRI study was the most thorough of the six studies reviewed. Specifically, the report detailed the comprehensive analysis carried out, and experts from the industry and other spheres of activity reviewed the description of the various processes to validate their completeness and accuracy. There were some limitations of the MRI study. For instance, the energy required to build manufacturing facilities and to equip them with machinery was excluded, as were the energy savings that might accrue from specific situations - e.g. the heat value of materials used as fuel (particularly plastic products) was considered but not its potential recovery; the energy consumption used in peripheral processes (i.e., those associated with materials that aggregate to less than five percent by weight of the container) was neglected; and the savings from using recycled rather than virgin material to produce a new product did not include the reduction of the energy necessary to melt the materials in the furnace.

The limitations of Hannon's study are: (1) The soft drink data was based on only one bottler and that data on the average distances between raw materials sites and manufacturing plants were provided by only one glass container manufacturer; (2) less emphasis was given on the utilization of data that broadly represented the average industry process; (3) the study did not provide the energy consumption patterns at different trippage levels and significant energy savings at these levels; (4) omitted discussion of the energy consumption required for an adequate cleaning and sanitizing system for refillable glass bottles, and the back-up calculations necessary to understand the conclusions drawn.

The Haller study differs from the others in that it did not consider the filling, packaging, and distribution steps, which are, of course, important elements of the total system. Further, the analysis of refillable bottles is not complete.

The Swedish study relied heavily on the data provided by the Swedish beer companies. Further, the container mix is not readily comparable to the container mix found in the United States.

Dr. McNabb's study did not provide an analysis of the complete system. The computations represented only additional energy consumption required for a complete shift to returnables in the distribution sector and, finally, the study included environmental impact calculations not contained in other studies.

The author of the American Can Company's study (Dr. Katz) provided a complete system analysis and examined the impacts of new technology that could reduce energy consumption patterns by 1980. However, the details of the compilations were not given in the text. The final results were presented in graphic form.

4.3: Based on the review of the energy consumption studies presented in Section 4.2, we decided to follow primarily the MRI study to construct an index of energy consumption that could be applied to the state of Michigan. The beer container system description according to the MRI study is presented in Table 4.9, and the index of energy consumption is shown in Table 4.10. Further, the energy consumed in each process step for each type of beer container evaluated in the MRI study is summarized in Table 4.11.

4.4: Energy Requirements by Fuel Source

Table 4.12 shows the energy requirements for 12 oz. beer container systems by type of fuel used and expressed in terms of BTU's (British thermal unit). (The BTU measurement is a common way of expressing different fuels for standardization purpose and which permits the interchangeability of energy sources for many end users.) Some experts have argued that it is meaningless to express different fuel systems in terms of BTU's (see Dr. John McNabb), thereby ignoring the qualitative importance of their availability. It may be argued, however, that, for the short term, energy sources are not interchangeable. For example, at the present time oil and gas, which have special and useful characteristics, are in short supply. As such, these fuels are considered to be more valuable and critical sources of energy both for economic and for political reasons. In the long run, however, the above "qualitative importance" argument does not necessarily hold well since we have no way of predicting the future availability and utility of other fuels, it would be wrong to extrapolate the vital importance of these fuels very far into the future. In the long run, then, the only reasonable parameter to predict is definitely the BTU usage.

Table 4.12 reveals the following:

(1) As the number of trips decreases, the usage of fuels increases for the refillable glass container system.

(2) Hydrocarbon fuels (petroleum and natural gas) are predominately used in the glass container system, including plastic bottles.

(3) Aluminum cans use the largest amount of hydrocarbons, along with a significant amount of coal, as compared with all other systems.

(4) If one attaches greater importance to hydrocarbon fuels, refillable bottles with a minimum 10-trip, offer the best advantage in the short term, i.e., from the point of available technology.

(5) As Dr. Katz pointed out (see the review of literature presented earlier) that by 1980, due to technological progress, the relative order of the least energy-intensive system changes - steel containers are equivalent to the refillable glass bottle, which is assumed to make ten trips. Further, as we can see from Table 4.12, steel cans and 10-trip glass bottles use almost the same amount of hydrocarbons.

(6) The 19-trip returnable and 10-trip returnable glass container use the lowest total BTU's, followed by all-steel can, 5-trip returnable bottle, steel-aluminum can, plastic coated glass bottle, plastic bottle, non-refillable glass bottle and aluminum can.

(7) The giants in total energy consumption are (1) aluminum cans and (2) non-refillable glass bottles for the delivery of 1000 gallons of beer, at the current levels of technology.

It is sometimes argued by the can industry that it uses hydroelectric power to a greater extent than other industries. It was calculated in the MRI Study, that, because of improved conversion ratios for hydroelectric power, the overall energy consumption for the aluminum can would decrease from 75 million BTU's/thousand gallons, to 63 million BTU's. Even though the relative performance of aluminum cans would improve, especially in terms of hydrocarbon fuel consumption, it would still not compete with a refillable glass container system.

4.5: Effect of Container Size on Energy Consumption

In the previous section, we have discussed the total energy consumption of container systems having the same volume (12 oz. equivalent) and traced the impact of trippage rate on energy consumption. Thus, the trippage was the most significant factor in the above analysis. There is a significant trend towards larger size container systems, even though commercial beverages sold in 12 ounce containers currently constitute the largest share of the market. Larger size glass bottles will increase their share of the market in future. The primary reason

Table 4.9

Beer Container Systems Descriptions

Abbreviation	Container Weight Kg.	oz.	Description	Degree of Occurance
19-Ret	0.277	9.8	Glass 19-Trip on Premise Returnable bottle-Steel Crown Closure-three trip paper packaging	Widespread
10-Ret	0.277	9.8	Glass 10-Trip off-premise returnable bottle-Steel Crown Closure-three trip paper packaging	Widespread
5-Ret	0.277	9.8	Five-Trip Off Premise Returnable-Steel Crown closure-one trip paper packaging.	Regional
ABS	0.035	1.2	ABS one-way plastic bottle-steel crown closure	Test Market
ALSTL	0.054	1.9	Three-piece all steel can, one way	Little Used
PCG	0.159	5.6	Plastic coated one-way glass bottle -Steel crown closure	Regional
OWG	0.186	6.6	One-way glass bottle-steel crown closure	Widespread
CSTL	0.050	1.8	Conventional three-piece steel can - aluminum ring pull closure	Widespread
ALUM.	0.020	0.7	Two-Piece one-way all-aluminum can (15% of cans recycled)	Widespread

Note: All bottle systems include paper packaging of empty and filled bottles. Paperboard Six-pack carriers were included in all bottle systems except the 19-trip off-premise. All can systems include paper packaging of empty and filled cans. Plastic ring six-pack carriers were included.

Source: Midwest Research Institute, P. 20.

Energy Consumption By Type of Beverage Containers

Basic Index: (Million BTU's/ 000 Gallons)

Beverage	Material	Refillable/ Non-Refillable	On Premises/ Off Premises	# of trips for Refillable	Contents (Ounces)	# of trips Second-ary Pkg.	TOTAL ENERGY Consuption (Million BTU's) Thousand Gallor
Beer	Glass Bottle	Refillable	On Premise	19 trips	12	3	15.90
Beer	Glass Bottle	Refillable	Off Premise	10 trips	12	3	21.61
Beer	Glass Bottle	Refillable	Off Premise	5 trips	12	1	42.88
Beer	Glass Bottle	Non-Refillable	-	-	12	-	64.38
Beer	Steel Can	Non-Refillable	-	-	12	-	38.63
Beer	Steel-Alum.Can	Non-Refillable	-	-	12	-	53.73
Beer	Alum. Can	Non-Refillable	-	-	12	-	75.03
Beer	Plastic coated Glass Bottle	Non-Refillable	-	-	12	-	60.66
Beer	Plastic Bottle	Non-Refillable	-	-	12	-	63.32
Soft Drink	Glass Bottle	Refillable	Off Premise	15 trips	16	3	11.85
Soft Drink	Glass Bottle	Non-refillable	-	-	12	-	70.68
Soft Drink	Steel Can	Non-refillable	-	-	12	-	38.12
Soft Drink	Steel-Alum.Can	Non-refillable	-	-	12	-	58.23
Soft Drink	Alum. Can	Non-refillable	-	-	12	-	74.52
Soft Drink	Plastic coated Glass Bottle	Non-refillable	-	-	12	-	62.73
Soft Drink	Plastic Bottle	Non-refillable	-	-	12	-	58.34

SOURCE: MRI Study.

Table 4.11

Energy Consumed in Each Step of Process For Beer Containers
(Millions of BTU's/ 000 Gallons

Type of Container / Type of Process	12 oz. Ref. Glass Bottle On premise, 19 trips		12 oz. Ref. Glass Bottle Off premise 5 trips		12 oz. Non- Ref. Bottle		12 oz. Steel Can		12 oz. Steel-Alum. Can		12 oz. Alum. Can		12 oz. Plastic Bottle	
	#	%	#	%	#	%	#		#	%	#	%	#	
Mining & Mfg.	4.26	26.6	13.06	30.4	41.84	65.4	34.67	88.9	49.60	91.8	69.45	92.6	42.67	67
Bottling & Secondary packaging.	9.52	59.5	27.22	63.3	18.55	28.9	3.30	8.5	2.85	5.3	3.18	4.2	15.95	25
Transportation	2.19	13.7	2.58	5.2	3.30	5.2	.95	2.4	1.48	2.7	1.94	2.6	4.28	6
Disposal	.03	.2	0.14	.3	.31	.5	.08	.2	.07	.2	.43	.6	.10	
TOTAL	16.00	100	43.00	100	64.0	100	39.0	100	54.0	100	75.0	100	63.0	1

SOURCE: Summarized From MRI Study.

* These transportation figures are supposed to reflect all Transportation - related energy uses in the various steps

The above table indicates that mining and manufacturing consumes a large portion of energy for throwaway containers However, in the case of refillable bottles, bottling and secondary packaging followed by transportation consumes a greater part of total energy. On the whole 19- trip refillable bottles consumes less energy compared to others. The 19-trip refillable bottle consumes only one-fourth of energy compared to non-refillable bottle having the same capacity.

Table 4.12

Energy Requirements by Fuel Source for 12-oz. Container System Delivering Beer (Million BTU's/Thousand Gallons)

Type of Container / Fuel Source	Refill-able Glass Bottle, On Premise 19-Trips	Refill-able Glass Bottle, Off Premise 10-Trips	Refill-able Glass Bottle, Off Premise 5-Trips	Non-Re-fillable Glass Bottle (OWC)	Steel Can (ALSTC)	Steel-Aluminum Can (CSTL)	Aluminum Can	Plastic Coated Glass Bottle (PCG)	Plastic Bottle (ABS)
Petroleum	5.20	6.42	11.59	13.76	5.06	10.14	17.25	13.06	30.35
Natural Gas	6.17	8.68	15.71	32.67	10.69	17.51	30.94	30.58	17.49
Coal	2.55	3.48	7.00	10.60	21.92	23.67	21.96	9.80	8.32
Wood Fiber	1.76	2.73	8.00	6.39	.18	.16	.16	6.13	5.88
Misc. (Hydro & Nuclear)	.22	.29	.60	.98	.75	2.12	4.51	.93	1.26
TOTAL	15.90	21.60	42.90	64.40	38.60	53.60	74.92	60.50	63.30

Summarized version of MRI Study--Table 13, Page 34.

Table 4.12(a)

Ranking of Systems for Energy Requirements for Each Fuel Source

	19 PET	10 RET	5 RET	ABS*	ALSTL*	PCG*	OWG	CSTL	ALUM
Petroleum	1	3	5	9	1	6	6	4	8
Natural Gas	1	2	4	5	3	7	9	5	7
Hydro Carbon Total	1	2	4	6	2	6	6	4	6
Coal	1	2	3	4	7	5	6	7	7
Woodfiber	4	5	9	6	1	6	6	1	1
Misc. (Hydro & Nuclear)	1	2	3	7	4	5	5	8	9
Total Energy	1	2	4	6	3	6	6	5	9

*These are little used.

The underlined represent tie for the rank where two numbers were found to be closer than 10 percent of the lower number.

for the change is that larger containers require less material to make relative to the quantity of beverage delivered and economies of scale that can be achieved in a number of processes, which, in turn use less energy for the same amount of beverage.

Among the studies reviewed, Haller's study and Bruce Hannon's study presented, to some extent, the relationship between the size of container and the amount of energy consumed (see Tables 4.1 and 4.2). Table 4.2 shows a 23 percent decrease in energy consumption by going from a 10 oz. non-refillable glass bottle to a 32 oz. beer bottle. The Hannon study points out that using 16 oz. non-refillable bottles instead of the 12-oz. size would result in a 10 percent energy savings. The MRI Study corroborates the findings of the Hannon study in this regard. It is reasonable to argue that marketing beverages in larger containers does result in a significant reduction in energy use.

APPENDIX B*

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*Appendix B contains Position Papers submitted by deposit legislation proponents. The material is organized alphabetically by the person or organization represented.

Oct 25, 1979

ear Jim,

Enclosed is a copy of Alcoa's position on deposit legislation that you might want to distribute to embers of HJR60 committee. It's from

Vermont 5¢ Deposit" -- a report on Vermont's experience with beverage container deposit legislation over a four year period. By James M Jeffords (congressman from vermont); and Donald W. Webster (Director of Environmental Protection Vermont Agency of Environmental Conservation) Nov. 1977

Sincerely

Ruth Gardner
Montanans for Deposit Legislation
Box 1013
Helena, MT 59601

EIVED
26 1979

APPENDIX G

ALCOA'S CURRENT POSITION ON DEPOSIT LEGISLATION

We have for several years been very active in opposing deposits at local and national levels. Our greatest concern has been those proposals that discriminate against the aluminum can and prevent it from competing in the marketplace. In addition to opposing such proposals with all our energy, we also have worked against uniform deposit proposals.

However, we have become convinced that uniform deposits are quite different from the discriminatory deposits that we still oppose. While Alcoa will not actively support uniform deposit regulations now, we can see a number of reasons why we should not object to a uniform deposit law. As a result, we have modified our position to focus on discriminatory deposit proposals.

Public opinion data indicate that between two-thirds and three-quarters of the U.S. public now support mandatory deposits on beverage containers. Evidence of this has also become evident at the ballot box. The public in Michigan and Maine was strongly favorable to deposit proposals on the ballot in those states last year. The citizens of Oregon are strongly behind the state's "bottle bill," the nation's oldest deposit law, even though it is discriminatory.

The public favors deposits as a means of litter control. While Alcoa feels this is at best only a partial measure and does not think this is the most productive means of getting at the litter problem, there is no question that littering of beverage containers does decline after deposits are imposed.

Another prime motive offered for supporting deposits is the public's growing interest in conserving materials and energy. Alcoa has been actively pursuing that course for some time through voluntary reclamation of aluminum cans. Today, about one in four aluminum cans are being returned for recycling, thus saving major quantities of materials and energy. Where the aluminum can is used widely, returns currently approach one in two. But we have trouble seeing the national figure going beyond 50 percent through voluntary recycling. Making all containers returnable through uniform deposits, on the other hand, will dramatically increase the percentage of returns.

1977-08-26

REPORT TO THE INTERIM COMMITTEE
OF THE MONTANA LEGISLATURE
ON
BEVERAGE AND FOOD CONTAINER PROBLEMS

RECEIVED
SEP 18 1979
MONTANA LEGISLATIVE
COUNCIL

by Mike Males and Don Reed
Environmental Information Center
P.O. Box 1184
Helena, Montana 59601

14 September 1979

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Environmental Information Center, P.O. Box 1184, Helena, Montana 59601
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INTRODUCTION

I. Purpose of Study

HJR 56 (passed by the 46th Montana Legislature) orders a legislative interim study on "the problems associated with the use, disposal, and recycling of food and beverage containers," which will examine "a variety of programs. . . in neighboring states" to "assist in resolving disagreements over the nature of the problems and the possible effects to be expected from alternative solutions."

As used in this report:

(1) "Beverage container" means the bottle or can holding beer, malt liquor, or a carbonated soft drink.

(2) "Food container" means the container holding any other kind of liquid or solid food product sold in groceries, restaurants, or other retail outlets.

(3) "Recycling" means the process of manufacturing new products from the materials of used products, instead of from raw materials.

(4) "Refilling" means the process of refilling the same container a number of times with a beverage or food product.

II. Problems

The beverage and food container problem divides into three separate but related problems. In our view, these are:

(1) Resource and energy use for manufacturing, transporting, and disposing of containers;

(2) Container litter; and

(3) Government and citizen action necessary to rectify the first two problems.

The beverage container problem is quite different from the food container problem. While together beverage and food containers comprose 60% of all packaging sold and are the fastest-growing segments of municipal waste, the similarity ends there. As discussed in the next section, beverages and foods are sold in entirely different types of containers, use differing distribution systems, have differing recycling potentials, and present differing resource and energy consumption patterns. Beverages are overwhelmingly sold in four basic types of containers, while food is sold in thousands of different types, ranging from styrofoam hamburger cartons to 5-gallon glass jugs.

Because of these differences, we haven't been able to discover a "black box" solution which solves all types of container problems. Our proposed solution is therefore a composite approach based on our belief that container recycling and refilling is the best way to handle resource, energy, and litter problems, and that consumer-oriented approaches are preferable to government programs.

BEVERAGE CONTAINERS -- PROBLEMS AND PROPOSED SOLUTIONS

Problems

(1) Resource Use. Montanans annually consume 31 gallons of beer and 40 gallons of soft drinks per capita -- a staggering 500 million containers each year. These beverages are sold in four basic container types, which are listed below according to market share and resource consumption:

Container	Market share	Tonnage per year
Aluminum can	52%	3,300 (43% recycle)
Steel can (bi-metal)	18%	4,500 (1% recycle)
Refillable bottles	19%	2,400 (95% return)
Throwaway bottles	11%	13,800 (5% return)
Plastic/paper cartons	-	1,500?
TOTAL BEVERAGE WASTE	100%	25,500

Together, beverage containers comprise about 5½% of all solid waste generated by Montana consumers and businesses, including 75% of the aluminum, 45% of the glass, and 20% of the steel thrown away.[1]

(2) Energy Use. Using national figures compiled by the Resource Conservation Committee of the U.S. Congress for beverage container manufacturing and filling, and adding transportation energy figures for Montana,[2] Montana's current beverage system consumes the following energy:

Container	Energy Consumption per 12 ounces	Number of "Fills"**	Total energy use (billion BTUs)
Aluminum can	7,800 BTU	260 million	1,466*
Steel can	4,200 BTU	90 million	378*
Refillable bottle	2,100 BTU	95 million	199*
Throwaway bottles	4,800 BTU	55 million	264
TOTAL	4,720 BTU (Avg)	500 million	2,307*

*assumes 43% of aluminum cans recycled, 95% of refillable bottles returned for refilling, and 1% of steel cans recycled.

**one fill = one container sale

The current beverage system serving Montana consumes over 2.3 trillion BTU annually -- the energy equivalent of 400,000 barrels of oil per year, or 1,100 barrels of oil per day. Montana now consumes a total of 280 trillion BTU in all sectors.[3]

Although some contend Montana's wide-open spaces and remoteness from urban markets make our transportation energy use very high, the fact is that transportation consumes only 5% of the total energy consumed by Montana's beverage industry.

(3) Litter. Only one study has been done on Montana beverage container litter -- that by the seventh and eighth grade science classes at Paxson School in Missoula in 1971. In 14 miles of highways outside of Missoula, these classes collected 3,141 beverage containers in one day -- 96% of which were non-returnable. "We did not find as we had been told time and time again that litter is indiscriminant," their report concluded. "(There is) a definite correlation between non-returnables and containers found littering our roads."[4]

A number of studies have been done nationally and in other states on the composition of highway litter. We have averaged the results of the 12 litter studies in the table below, together with a glossary of "litterology" which describes the different ways of counting beverage container litter:

(a) "Piece count," also called "item count," means that all the individual pieces in a sample of collected litter are simply counted and categorized. This type of count is the easiest to manipulate to produce desired results. One researcher (Daniel Syrek) who wanted to show that beverage containers are only a small part of litter counted each piece of a shredded newspaper as fifty items instead of one, while counting each beverage container (whether in pieces or not) as one item.[5] By equating one littered match with one truck tire, piece count generally fails to measure the impact of litter due to its varying standards.

(b) "Volume count" measures each litter category according to its percentage of total litter volume. This is a far more accurate measure of the visual impact of litter, according to the Midwest Research Institute.[6] This report will generally use the "volume count" measurement.

(c) "Permanent litter" or "hazardous litter" means plastic, aluminum, and glass litter which does not decompose and thus accumulates in the environment unless physically cleaned up. This type of litter is also hazardous because its sharp edges are frequently the cause of injury to humans and stock and damage to equipment.

Type of Measure	Percent beverage containers in total
Piece count	25%
Volume count	48%
Permanent/hazardous litter count	98%

(see Appendix for studies used)

It is fair to say that beverage containers comprise around 48% of the visual impact of litter and 98% of its nuisance and hazard potential -- a total impact which far exceeds that of any other litter category.

Beverage container litter has a number of costs. One is monetary: the Montana Highway Department annually spends $200,000 in a never-ending campaign to clean up roads and recreation areas. In 1976, the Missoula Division of the Department estimated three-fourths of its $46/mile expenditures were spent cleaning up beverage containers, although our conversation with a state Highway Department official in early 1979 indicated this percentage has probably declined somewhat.[7]

If Montana tracks the national average, an even larger amount is spent by private land owners and businesses to clean up litter. Together with expenditures for litter cleanup in national forests, Bureau of Land Management lands, and national parks, total litter control in Montana probably costs in the range of $2 million to $3 million annually.

A second cost is litter-related injuries and damage to humans, stock, and equipment. A California legislative study estimated that 80% of the 300,000 litter-related injuries in that state annually were caused by beverage container glass and pull-tabs. Bottles and cans frequently cause damage to farm equipment and highway vehicles and injuries to stock which eat pull-tabs and broken glass (both of which can be crushed by balers and baled with feed), according to the Farm Bureau.[8]

Pro-rated to Montana, around 10,000 litter-related injuries occur each year, as well as an undertermined amount of damage and stock injuries, the overwhelming majority of which are caused by beverage containers. The total public and private costs of beverage container litter in Montana may run into the millions of dollars each year.*

(4) Government and Citizen Solutions. HJR 56 lists three approaches for managing the beverage container problems above. In addition to "no state action," these proposed solutions are:

(a) a "litter tax" modeled on Washington's;

(b) a "voluntary" industry recycling program, as in Arizona and Idaho; and

(c) a beverage container deposit system, similar to those in Oregon, Vermont, Maine, and Michigan.

The following section evaluates these proposed solutions according to the cost-effectiveness of each (as mandated in HJR 56):

(a) Is the proposed solution effective in recycling and refilling beverage containers, saving energy, and reducing litter?

(b) How much does the proposed solution cost to consumers and taxpayers? Is it fair? What economic side effects does the proposal have (i.e., on employment, beverage consumption)?

(c) Finally, does the proposed solution rely primarily on government or on citizen action? This last criteria is based on our belief that citizen involvement is critical to the success of any proposed solution -- and the following discussion demonstrates this belief.

---

*A study done for the Washington Department of Ecology estimated total public/private litter control costs at $14 million -- only $2.5 million of which was paid by the state government.

PROPOSED SOLUTIONS

I. No State Action

"No state action" has been Montana's official policy with regard to the beverage container problem for a number of years. Advocates of "no state action" argue that the free market should determine the container mix, recycling rate, and price of beverages. Recycling, they say, will be practiced where economically advantageous.

Such a position would be viable in our view if the market incorporated all the costs of various types of containers so that the consumer could make an informed and economic choice. The Office of Technology Assessment concluded:

> Certain costs of the production, use, and disposal of beverage containers are not paid by the participants in those actions, but by society at large. This happens because the market system does not provide incentives to the participants to pay for all of the costs they create. (In other words, there is a case of what analysts call "market failure"). These include litter costs (esthetic loss; pick-up costs; injuries to people, livestock, and wildlife; and damage to vehicles and other machinery), pollution costs (some of the air and water pollution from producing materials and manufacturing containers), and solid waste management costs (collection, disposal, and landfill pollution). Both equity and economic efficiency might be served by government action to ensure that the participants pay these costs, providing that such government action does not create even greater problems.[9]

Major cost categories not paid by consumers of throwaway beverage containers include:

(1) Litter Costs. As indicated, these may run into the millions of dollars each year, paid by individuals and society at large rather than by litterers.

(2) Solid Waste Costs. Montana governments usually charge property owners a fixed amount for garbage disposal without charging in proportion to the waste generated by a particular customer. Therefore, those who recycle and produce little waste subsidize those who produce a great deal of waste. At an average $30 per ton collection and disposal costs, the waste generated by throwaway beverage containers costs Montana taxpayers $750,000 per year to collect and landfill -- a cost which will increase rapidly if landfill upgrading and leachate control standards are imposed on currently non-complying Montana communities. These costs average about 5¢/case of throwaway containers sold -- but these costs don't appear in the beverage's purchase price.

(3) Energy and Resource Extraction Costs. Taxpayers now subsidize raw materials extraction and transportation through investment tax credits, depletion allowances, and discriminatory rail freight rates. Current Interstate Commerce Commission rail tariffs, for example, charge 2-5 times more to transport secondary (recycled) materials than to haul raw materials.

(4) Pollution Costs. The Midwest Research Institute has calculated the pollution impacts of delivering 1,000 gallons of beer in various containers, summarized in the following table:

1,000 gallons beer Container type	Air Emissions (lbs)	Waterborne wastes (lbs)	Total water use (gals)	Industrial waste (cu ft)
Refillable bottle				
19-fills (95% return)	71	27	11,000	7
10-fills (90% return)	94	35	15,000	9
Throwaway bottle	261	56	37,000	33
Bi-metal (steel) can	222	34	34,000	93
Aluminum can (15% ret)	323	59	15,000	36

A fraction of these pollution costs are paid by manufacturers through pollution control equipment, but most are not.

(5) Future Costs. Engineers Barry and Makino, who have pioneered net energy studies, concluded, "Depletion and dispersion of resources now is a way of making future generations pay far higher costs in acquiring basic raw materials." Battelle Laboratories reached a similar conclusion: "materials, such as metals and their oxides, can be lost irretrievably to future generations through present solid waste disposal practices."[10]

A graphic example of present wasteful practices causing higher future costs is provided by the aluminum beverage can. Producing 1 pound of aluminum requires 8-10 kilowatt-hours of electricity (10 times the electricity used to produce other types of containers), which now costs the aluminum industry in the Northwest $0.00316/kwh, or roughly 3¢ per case of 24 cans produced.

Following Bonneville Power Administration's already planned rate increases for 1980 and 1982, the cost of electricity to produce one case of 24 aluminum cans will approximately quadruple to 12¢ -- that is, if BPA can even continue the industry's power supply contracts.* A primary cause of these rate increases is BPA's share of several large nuclear power plants now being constructed in Washington state -- and a primary cause of the growth in electricity demand which caused these plants to be constructed is the aluminum industry, which consumes 30% of BPA's power.

Electricity from these new power plants will cost more than twenty times today's hydroelectricity -- and by the late 1980's, more than 70% of the region's power will be from thermal plants (the planned nuclear plants, for example, cost in excess of $2 billion each).*

What relevance does this have to the beverage container problem? First, if widespread recycling of aluminum cans (which comprise 11% of the aluminum market) had been practiced in the past, the need for expensive future generating capacity would be reduced to the benefit of all electricity consumers. Recycling of aluminum cans, which uses 97% less energy than its original production from bauxite, in the four Northwest states could have eliminated the need for $100 to $200 million in new generating capacity, paid for by all classes of consumers.

Second, future electricity costs for manufacturing aluminum cans are likely to be in the range of 40-60¢/case without widespread recycling, rendering aluminum cans economically infeasible. Recycling is thus a way to keep aluminum cheap and preserve the can market -- perhaps the only way -- and recycling depends on a high container return rate.

---

*BPA Revised 1979 Wholesale Rate Studies, BPA 1979

Internalizing all of the above costs into the market would substantially increase the commercial price of throwaway containers. The current policy of "no state action" subsidizes throwaway containers.

"No state action" is ineffective, arbitrary, unfair, and costly. It makes non-litterers subsidize litterers, non-polluters subsidize polluters, thrift subsidize waste, and the future subsidize the present. On the other hand, the throwaway container has greatly aided in the regional centralization of the beverage industry into larger and larger plants, eliminating more than a score of local brewing and soft drink bottling plants in Montana since 1950.

Two state polls have indicated Montanans are ready for an end to state inaction by margins of 75% or more. We believe the main problem is deciding which proposed solution to implement.

II. A Litter Tax

(1) Description. The Model Litter Control Act was passed by the Washington state legislature in 1971 and ratified by the voters in 1972. The stated purpose of the MLCA is to "accomplish effective control of litter" and "to allocate a portion of the cost of administration . . . to those industries manufacturing and/or selling products and the packages, wrappings, or containers thereof which are reasonably related to the litter problem."

The MLCA seeks to accomplish this by means of five basic provisions:

(a) Prohibition of littering in all public areas and private property "held out for use by the public." Managers of both public and private areas must purchase garbage cans bearing the MLCA symbol, and owners of vehicles and boats must carry a litterbag at all times, subject to fines for non-compliance. (Public annoyance at the latter provision caused the State Highway Patrol to re-define "litter bag" to include glove compartments). The MLCA also funds a Youth Litter Patrol to clean up litter.

(b) An educational program to promote the anti-litter message through business, citizen, government, and school organizations; program development, which includes grants and litter studies to determine, for example, the psychology of behavioral types most likely to litter; and law enforcement.

(c) Promotion of recycling through a toll-free "Recycling Hotline" and other general advertisements. A 1978 amendment to the MLCA authorized 20-30% of the MLCA budget for "public education and awareness programs" to promote recycling and "awareness of the MLCA."

(d) Financing of the program through a tax placed on litter-related industries.

(e) Creation of a new state agency to administer the MLCA, called the Department of Ecology.

(2) Cost. The MLCA is funded by a tax on 24 categories of Washington businesses equal to .015% of their products' value, assessed at all levels of the manufacturing, wholesaling, and retailing sectors. Many products are taxed more than once. Although taxed businesses are supposed to sell products "reasonably related" to litter, the tax is not proportional to each product's contribution to litter. Beverage industries, for example, contribute 48% of litter by volume but pay only 6% of the litter tax. Around 80% of the tax is paid by food consumers (through higher grocery prices) despite the minimal contribution of cabbage and sirloin steaks to the litter problem.

Due to the Department of Ecology's (DOE) ability to find new industries to tax, tax collections have risen 400% from $350,000 in 1971 to $1.4 million in 1978, though Washington's population increased by only 7%.[11]

(3) Effectiveness. Supporters of the MLCA credit it with reducing Washington litter by 66% and creating 1,000 jobs in recycling.[12] Neither of these claims is supported by the evidence.

The origin of the "66% reduction in litter" figure is interesting. Although the MLCA was implemented for the express purpose of reducing litter, no one did a baseline study before the program began. In 1974, therefore, the coalition of industries which had supported the MLCA did a study on what Washington litter must have been like in 1971.

Their study used the following assumptions: crude litter generation estimates of 12 cubic yards per mile for primary and interstate highways in 29 states (not including Washington) were simply multiplied by all 72,000 miles of Washington interstate, primary, county, national forest, and state forest roads. Thus the study applied a heavy-use major highway litter rate to light-use county and forest roads which comprise 77% of the mileage in Washington's system. The study then added an extra amount to account for non-roadside litter.

The results made Washingtonians appear the worst slobs in the Western Hemisphere, annually depositing some 100,000 tons of litter on their state -- some 60 pounds per capita. A California legislative study, using roadside samples, concluded that Californians littered 40,000 tons a year -- in a state with five times Washington's population.

In 1975, the DOE finally got around to doing a study based on scientific sampling of roadside litter in Washington. When the study concluded that litter generation was only 40,000 tons in 1975 and 34,000 in 1976, MLCA proponents proudly proclaimed a 66% reduction over the 1972 figure.

Litter tax supporters joyously spread the figure around the country. What hasn't received so much publicity is that in 1977 the DOE withdrew the "66% reduction in litter" conclusion because, according to DOE Public Relations Director, Mike Aarhaus, it "was shot full of holes," was "not scientific," and was "inconsistent with later studies."[13] The DOE substituted a series of annual test-area litter samplings which indicated a reduction of 15% in Washington litter in the three years following 1975.

Curiously (or, perhaps, not so curiously) litter tax advocates still use the now-discredited "66%" figure -- as recently as January 1979 (in U.S. News and World Report) and in information sent out by the Glass Manufacturer's Institute, among others -- without even a hint that it has no scientific validity.

The only result which could be attributed to the MLCA is a 15% reduction in Washington litter, at a cost of some $6 million to Washington taxpayers. Even this reduction is not statistically significant. Similar roadside sample surveys show a 21% decline in Oregon's non-beverage container litter in the two years following implementation of its deposit law, while Montana Highway Department officials report a similar slight decline in Montana highway litter. Neither Oregon nor Montana has a litter tax.

The other benefit cited by litter tax advocates is "creation" of 1,000 recycling jobs. It is true that Washington has an extensive recycling center network, with some 379 organizations operating 579 centers.

Prior to 1979, the DOE spent only a small fraction of its budget to promote recycling, primarily through operation of a "Hotline" and distribution of publications. It's hard to see how this activity "created 1,000 jobs in recycling."

MLCA supporters assume that no recycling would have occurred in Washington without the MLCA. A comparison with neighboring Oregon, which has no litter tax, indicates recycling can develop just as well without one. Oregon, which has 25% fewer people than Washington, has around 400 recycling organizations operating 500-600 recycling centers.[14] *

Although the MLCA may have a marginally beneficial effect on Washington recycling, it is difficult to measure. The only jobs fairly attributable to the MLCA are the 17½ jobs created in state government to administer the act.

Because of the good container market created by the existence of eight aluminum industries and four breweries in Washington, around 430 million containers are recycled there annually (22% of the market) and another 560 million bottles (28% of the market) are recovered through beverage container deposits for refilling. A 1978 DOE Recycling Hotline survey found that 50-60% of Washington's aluminum cans are being recycled, while Pete Whited of Reynolds Aluminum confirmed that "50% would be a good figure." Washington's 10-year old aluminum recycling program pays customers 24-27¢/pound, 30% higher than Montana.[15]

Thus Washington, with much more favorable recycling markets than Montana, recycles or refills about 50% of its beverage containers. The majority of the containers recycled or refilled are collected through deposits, not through the state's recycling system.

(4) Side Effects. The MLCA contributes minimally to Washington food prices -- about $1 per family per year. We can't pin down any effects, positive or negative, on beverage or food sales, employment (other than in state government), or consumer inconvenience.

The MLCA appears to us a government-oriented approach, spending 30% of its budget on administration, 40% on litter cleanup and studies, and only 20-30% on promoting citizen action to recycle and reduce litter.

In late 1978, Washington Governor Dixy Lee Ray testified at a legislative hearing that Washington highway litter is "a disgrace, the worst ever. The litter on our highways is worse than I've ever seen it." A Seattle newspaper analysis concluded that the MLCA is a prime example of a government program "that could and should be trimmed from the list."[16]

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*Recycling surveys from both states' recycling information agencies show Oregon residents recycle an average of 317 pounds of materials and 9.3 cases of bottles per capita; Washington residents 257 pounds of materials and 7.2 cases of bottles per capita.

(5) Litter Taxes in Other States. Seven other states have adopted litter taxes following Washington's example. Three -- in Connecticut, Hawaii, and Missouri -- are not yet effective. Four states' programs have been implemented, with the following results:

-- Arkansas. The litter tax in Arkansas was repealed in 1977 by the Legislature, one year after implementation, on the grounds it was ineffective.

-- California. Passed in 1977 at the urging of deposit legislation opponents in the beverage industry, California's litter tax was gutted in early 1979 by the state Senate one month after the state tried to collect the $20 million tax from 650,000 businesses. "The outcry was so great," the Sacramento Bee reported, "the state Senate panicked. Without holding hearings . . . the Senators this week repealed the measure." Complaints from outraged California businesses centered around the unfairness of the tax, which applied to non-littered items such as pianos and automobiles as well as littered items. Further, the amount would not have funded a meaningful anti-litter program. The litter tax has already incurred a debt of $3-4 million, which legislators are trying to repay.[17]

-- Colorado. Again, at the urging of the beverage industry, the Colorado legislature passed a litter tax in 1977. Again, the state incurred substantial debts in the first two years prior to collection. And again, when the first tax bills were sent out, complaints from Colorado businesses were so intense the legislature allowed the tax to sunset out of existence on July 1, 1979.

-- Kentucky. Kentucky's litter tax took effect June 16, 1978, with results similar to California's. Kentucky wholesalers, who pay the tax, filed suit alleging the tax is "unfair and arbitrary in its methods."

III. Industry Recycling Programs

A second means of handling the beverage container problem is the industry recycling program, in which the beverage industry sets up collection points which agree to accept any beverage container and pay its material value.

HJR 56 requires examining the Total Recycling in Idaho Pays (TRIIP) program, but a recent conversation with TRIIP Manager, Ted O'Canna, of the Boise Coors distributorship, indicates the program folded in July, four months after starting. Still, the TRIIP model is worth examining because of its possible applications to Montana.

TRIIP's brochure identified four recycling centers in Idaho which "will pay in cash for any kind of beverage container whether it be steel, tin, or aluminum . . . for any glass beverage bottle including the so-called non-returnable variety . . . . There will be no limit on the amount of returnables the centers accept."[18]

The TRIIP program had called for a network of recycling centers to be established around Idaho by the end of 1979. "The entire endeavor," the brochure reported, "will be financed by the Idaho Beer and Wine Distributors and the Idaho Retailers Association."[18]

Even prior to TRIIP's folding, both O'Canna and Roger Tippy of the Montana Beer and Wine Wholesalers suggested Arizona's Beverage Industry Recycling Program (BIRP) would be a better model than TRIIP, even though HJR 56 specifies analysis of TRIIP.

The reason is that BIRP has been in existence since 1971 and offers an example of a program at "running speed" rather than a first-year program such as TRIIP. We accept the logic that first-year experience does not yield a fair evaluation and offer the following analysis of BIRP.

Arizona's beer and soft drink industry began BIRP in 1971, when essentially no recycling industry existed. By 1979, BIRP had expanded to a network of twelve centers and six mobile units.

(1) Cost. BIRP general manager, Jerry Petrie, indicates that BIRP required an initial subsidy from the beverage industry but is now "self sustaining." We, therefore, conclude BIRP does not now cost either consumers or taxpayers.

TRIIP, however, would have run at a deficit. Its brochure described an extensive advertising and promotional campaign, including consultant services. Further, O'Canna frankly indicated TRIIP expected to "take a bath" on glass and steel sales since, unlike Arizona, no local recycling markets exist for either in Idaho. TRIIP would lose, at current prices and haul rates, about $17 for each ton of glass it collected and $10 for each ton of steel, plus labor costs. We estimate, conservatively, that had TRIIP paid customers 25¢/pound for aluminum and 1/2¢ pound for glass and steel as advertised, its annual deficit would have run from half a million to over a million dollars per year -- depending on the number of containers it collected.[18]

Why can BIRP break even while TRIIP would cost money? Simply because Arizona's recycling markets are much better than Idaho's. Unfortunately, Montana's recycling markets are even worse than Idaho's, so that a similar program here might well run an even larger deficit. It goes without saying that a beverage industry program deficit is recouped in the form of higher beverage prices.

(2) Effectiveness. BIRP's 1977 annual report indicates BIRP is an effective recycling program, collecting and recycling 13 million pounds of aluminum, 1.3 million pounds of steel, 6 million pounds of glass, 2 million returnable bottles, and 10 million pounds of newspaper.

Total Arizona container sales in 1977 were around 1.43 billion, including 820 million cans, 180 million throwaway bottles, and 430 million refillable bottles.

Assuming all of the glass and steel, and 95% of the aluminum (the BIRP report shows 5% non-can scrap), recycled by BIRP in 1977 was in the form of beverage containers, then BIRP recycled approximately 37% of the cans (300 million) and 6.4% of the throwaway bottles -- a weighted average of 31.5% of the throwaway containers sold. This figure is probably generous, since it assumes both a low rate of soft drink consumption (a high rate is more logical, given Arizona's climate and tourist industry) and that all glass and steel collected were beverage containers.[19]

The best estimate we can find is that BIRP handles approximately 75% of the beverage containers recycled in Arizona, other recyclers around 25%. This indicates around 49% of Arizona's can market (mostly aluminum) is being recycled and 41% of its total throwaway market -- 390 million throwaway containers out of just under 1 billion sold.

As in the case of Washington, more containers are recovered through Arizona's deposits on refillable bottles (410 million) than are recovered through all its industry recycling programs put together.

BIRP has experienced rapid growth in aluminum collections -- from 1.1 million pounds of aluminum in 1971 to 13 million in 1977. This growth, however, is much less than it appears. For one thing, Arizona beverage consumption increased 63% in that period; for another, the percentage of aluminum cans has risen from 5-10% of the market in 1971 to over 50% in 1977. BIRP, then, has consistently collected an average 30-37% of the aluminum cans sold since 1971.

(3) Side Effects. BIRP's recycling operations have apparently created several dozen recycling jobs in Arizona. BIRP is a citizen-oriented approach which has had a positive effect on public participation -- between one-third and one-half of Arizona's citizens apparently use recycling centers. Energy savings attributable to BIRP are substantial -- perhaps 10% to 15% of the total energy consumed by Arizona's beverage industry.

Without development of recycling markets comparable to Arizona's, it seems unlikely to us that Montana can improve its current recycling rate (30% of the total throwaway market) to Arizona's 41% level -- unless the container mix shifts substantially to aluminum. And TRIIP's difficulties indicate that industry recycling programs, as a comprehensive solution, are vulnerable to financial reverses which can prove fatal.

IV. Deposit Systems

(1) Description. Beverage container deposit legislation has been implemented in four states (Oregon in 1972, Vermont in 1973, Maine in 1977, and Michigan in 1978) and enacted in two others (Delaware and Connecticut in 1978). The basic provisions of a deposit law are as follows:

(a) A refund value of 10¢ (Michigan) or 5¢ (all other states) is placed on each beverage container, with the beverage consumer entitled to the refund at any retail store which sells the brand and type of container purchased. In practice, the retail store charges the customer a deposit equal to the refund value at the time of purchase.

(b) The retailer, in turn, is entitled to receive a refund for each beverage container he/she returns to its distributor. Again, in practice, the distributor charges the retailer a deposit at the time of sale.

(c) Beverage containers must be labeled to show refund value. These are the provisions of a basic "non-discriminatory" deposit law. Oregon and Michigan have implemented "discriminatory" laws which have an additional provision designed to encourage refillable bottles:

(d) A lower deposit (2¢ in Oregon, 5¢ in Michigan) is allowed for state-certified bottles which can be refilled by more than one bottler. The effect of certification is to give bottlers an incentive to shift away from cans and non-standard bottles toward a uniform bottle which can be purchased by any bottler simply by refund of the low deposit. Oregon's certification provision caused can sales to decline from 38% to 3% in the first year, though can sales have since rebounded to around 15% of the market.* Though Oregon's pioneer deposit law has been portrayed as "ban the can" legislation, in fact this is a consequence of the certification provision, not the deposit.

HJR 56 mandates examination of the deposit experience in the four states where such laws are now in effect. We examine deposit systems by the same criteria used to evaluate litter taxes and industry programs.

(2) Cost. Deposit laws characteristically have two cost components: capital (changeover) and operating costs. These, in more detail, are:

Capital: additional trucking, equipment, and warehouse space to handle returnable containers, and equipment to label containers.

Operating: additional labor and maintenance costs for handling returned containers.

In addition, deposit laws produce revenues, both for consumers who return containers and for taxpayers:

Revenues to beverage consumers: decreased bottling costs, sales of recyclable aluminum, and unclaimed deposits from the 5% of containers not returned.

Revenues to taxpayers: decreased solid waste management and litter cleanup costs, decreased pollution control costs.

The question receiving a lot of attention lately is: Do the revenues of deposit laws offset the costs?

In the three states with mature deposit systems, several patterns have emerged:

(a) During the initial months of the law, beverage prices tend to rise as industry passes on changeover capital costs made before the law took effect. Within a few months, revenues from unclaimed deposits, recycling sales, and lower bottling costs begin to accumulate, so that general beverage prices fall back to or below pre-law levels.

(b) Those beverage companies who continue to market non-refillable bottles under a deposit system experience a rise in price, while those marketing in refillable bottles tend to experience a price decline.

(c) Curiously, price survey data indicate that canned soft drinks are cheaper in deposit states than in non-deposit, indicating a sharp relative decline in the price of these containers.

Thus, Standard Operating Procedure is for deposit law opponents to focus on the initial months of a deposit system to highlight changeover price increases. Opponents, for example, still cite the rise in Maine beer prices from $1.80/6-pack to $2.20 in the first month of its deposit law. When Maine beer prices dropped back to pre-law levels a few months later (helped along in part by a price-fixing suit by the Attorney General against several wholesalers) the silence was deafening.*

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*The real culprit in the demise of the Oregon can was probably the ban on pull-tabs, to which the can industry had no alternative in 1972. Ten states, including California, have now banned pull-tabs.

Similarly, a widely-circulated American Can Company survey showed Michigan beer prices 20-24¢/6-pack higher than before its deposit law took effect. The survey doesn't as prominently indicate that it was taken exactly 35 days after the law was implemented and thus captured all its transition costs. When the popular Schlitz beer cut its prices 21¢/6-pack in the fifth month, again publicity was nil.

In January, 1979, the Can Manufacturers' Institute (CMI) released a survey of 263 supermarkets in four deposit and nine nondeposit states, which showed the following results:

Price/6-Pack (average)	Non-Deposit States	Deposit States
Beer, nat'l brands, cans	$1.93	$2.15
Beer, nat'l brands, bottles	1.90	2.16
Beer excise tax	0.0536	0.1106
Soft drinks, nat'l brands, cans	1.71	1.70
Soft drinks, store brands, bottles	1.12	1.45
Soft drinks, nat'l brands, 16-oz bottles	1.42	1.56

One industry group concluded the survey showed that "bottle bills fuel inflation and contribute to consumer costs."[20]

The assumption behind the above statement is that deposit laws, and deposit laws alone, account for price differences between various states. However, the CMI survey itself refutes that conclusion: average beer prices vary by 26¢/6-pack between non-deposit Wisconsin and non-deposit Ohio, for example; while bottled soft drink prices vary by a staggering 68¢/6-pack between non-deposit Wisconsin and non-deposit Connecticut. Is it possible that the beverage industry's economic galaxy does not revolve around deposit laws alone?

In fact, if pre-deposit law prices are taken into account for Oregon, Vermont, and Maine, a startling different conclusion emerges from the CMI survey -- deposit laws in those three states have been associated with no change in the price of beer, relative to neighboring states, and an actual decline in the relative price of soft drinks. This result can be seen clearly in the following table which compares beverage prices in deposit and neighboring non-deposit states before and after:

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*The Maine Attorney General's Office reported that ultimately, no overt cases of price-fixing were proved.

6-Pack	Prices Before Deposit Law[21]	Prices After Deposit Law[20]	Net Change
Vermont beer prices	30¢ higher than New Hampshire	25-35¢ higher than New Hampshire	NO CHANGE
Vermont soft drink prices	5-8¢ quart higher than New Hampshire	5¢/6-pack lower than New Hampshire	DECREASED 9-13¢
Maine beer prices	similar to Vermont's	17-27¢ higher than New Hampshire	NO CHANGE
Maine soft drink prices	similar to Vermont's	similar to New Hampshire's	DECREASED
Oregon beer prices	similar to Washington's	similar to Washington's	NO CHANGE
Oregon soft drink prices	similar to Washington's	similar to Washington's	NO CHANGE

The fact that differing states have differing beverage prices is demonstrated by the CMI survey, and any combination of the following reasons can account for them:

-- There are large differences in beer pricing between different regions, and differences caused by distances from breweries (is it fair, for example, to compare beer prices in Milwaukee with beer prices in Plentywood?).

-- The average beer excise tax is more than twice as high in deposit than in non-deposit states.

-- Labor costs are higher in Michigan than in Indiana, and higher in Portland, Oregon, than in Vancouver, Washington.[22]

-- Vermont and Maine have laws prohibiting "loss leader" retail beverage sales at prices below wholesale, while New Hampshire has no such law. New Hampshire merchants have traditionally used "loss leader" beverage prices and their state's lack of sales tax to dominate beverage sales in New England.

-- Michigan prohibits sale advertising of beer, franchise competition, non-posted beer prices, and volume discounts, while neighboring states do not have such restrictive and anti-competitive laws.

-- Sixty percent of the beer sold in Washington is from local breweries, while only 21% of Oregon's beer is local.

-- Wisconsin has nine breweries and a tax of $2.00/barrel on beer; Michigan (with twice the population) has three breweries and a tax of $6.40/barrel.

-- California has eight brewers and a beverage market of 21 million people; Oregon has one brewery and a market of 2.3 million people.

-- Both Maine and Michigan raised their legal drinking ages the same year their deposit laws took effect, while New Hampshire lowered its drinking age the same year Vermont's deposit law took effect. The result was a decreased beer market in all three deposit states.

The point of this discussion is that none of the above factors have anything to do with deposit laws or their absence, yet all have potentially greater effects on state-by-state beverage price differences. Yet deposit law opponents have focused on container laws as the only factor in beverage prices, when actually it is one of the most minor factors -- even using the opponents' own studies.

Michigan's situation is quite different, and its deposit experience is discussed in Appendix 3. The main reason for this difference is simply that Michigan's law is in its initial months, having gone into effect last December. The price surveys so widely quoted by deposit opponents took place 35 days after Michigan's law took effect and thus reflect all the laws transitional costs with none of its equilibrium benefits. Still, opponents have focused on Michigan as an example of what might happen in Montana, though it would be hard to find two more different states.

The opposition argument seems to be that 15 years of cumulative successful economic experience in Vermont, Oregon, and Maine should be ignored in favor of price surveys taken in the first 35 days of Michigan's deposit law. Interestingly, advocates of industry recycling programs have asked us not to focus on the difficulties (and now collapse) of Idaho's industry recycling program in its first year, on the justifiable grounds that start-up problems don't fairly portray how a program will operate as it matures. Deposit law opponents apparently don't feel constrained to apply their own logic to Michigan.

Nevertheless, our conclusion is that Michigan's deposit law will produce solid, positive economic benefits and that the beverage industry itself is at least partly to blame for the high prices of the law's initial months.

Projecting the effects of a deposit law on Montana necessarily means extrapolating from present experience. Montana deposit law opponents have predicted beverage price increases under such a system resulting from the labor, transportation, and handling costs of returnable containers. However, the handling, labor, and transportation costs of handling the 95 million refillable bottles sold in Montana right now don't seem to be much of a problem, as the following table indicates. The table shows the standard wholesale price of beer sold in the Helena area, together with the retail price of soft drinks surveyed in August in five Helena-area grocery stores:

Price/Case, wholesale	Western beers*	Eastern beers**
Cans, 24-count	$6.90	$7.00
Non-refillable bottles, 24-count	$6.90	$7.00
Refillable bottles, 24-count	$6.65 + deposit	$6.65 + deposit

*Olympia, Ranier, Lucky, Blitz, etc.
**Budweiser, Miller, Pabst, etc.

(TABLE CONT'D ON NEXT PAGE)

Soft drinks, retail	Price/carton	Price/12-oz serving
12-oz cans, national brands	$1.89/6-pack	26.2¢
16-oz refillable bottles, nat'l	$1.79/8-pack	14.0¢
Plastic 68-oz non-refillable bottle, national brands	$1.39 @	20.6¢
32-oz refillable bottle, nat'l	$0.45 @	14.1¢
12-oz cans, store brands	$0.89/6-pack	12.4¢
32-oz refillable bottle, store	$0.33 @	10.3¢

Thus refillable bottles average 25-35¢/case cheaper for beer than throwaway containers, while refillable soft drink bottles average nearly $2.00 per case cheaper than throwaway soft drink containers sold in Montana. In neither case do the costs of handling, transporting, and refilling bottles offset the bottling savings.

Establishing a range of costs and benefits for a Montana deposit law means first of all putting the deposit concept in perspective. At present, 19% of the beverage containers sold in Montana are returnable to groceries. An additional 5% are beer bottles which are technically returnable to distributors' warehouses, though few are returned. Thus a deposit law would affect only 75% of the containers now sold, almost all of these cans.

The range of costs for a Montana deposit law should lie between two extreme cases, analyzed below:

Case #1: All returned containers are handled by retail grocery stores and distributors, with no redemption centers established.

A California industrial engineering study concluded that handling returnable containers requires about 0.0028 hours/container in grocery labor time, or about 24¢ per case at wages averaging $3.50/hour.* Assuming distributors can make no more efficient use of existing trucking, warehouse space, and labor, the wholesale sector would require 25-30% more trucking space and labor, and 10% more warehouse space. From very rough figures given us by the state's wholesalers, the cost would be around $1.5 to $2 million per year, or about 20¢/case. This figure tallies well with the 15¢/case reported by Maine distributors for handling returnable bottles.[23]

Total costs of the bill seem in the range of 40-45¢/case, assuming the most pessimistic scenario that all 380 million extra returned containers are handled by grocers and distributors.

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*The survey included the following tasks: clerk ringing deposit, clerk refunding deposit, busboy racking empties, moving rack to storage area, sorting containers from rack, moving empty rack to front, checking empties to distributor, and accounting. Most Montana grocers we contacted said they would hire container handlers at minimum wage. (Bottle Survey '71. A California Supermarket Report on the Cost of Handling Returnable Soft Drink Bottles, La Habra, Calif., 1971.)

Subtracted from these costs would be revenues of 12¢/case for unclaimed deposits (at a 95% return rate) and 24¢/case (at a 90% return rate). Revenues to distributors from sale of aluminum cans for recycling would be around 18¢/case, while savings from decreased bottling costs would total around 30¢/case (for 10-refill returnable beer bottles to $1.00/case for 24-trip soft drink bottles). Thus revenues would be 30-42¢/case for cans and 42-$1.24/case for bottles, depending on the return rate.

From a consumer standpoint, then, we see no reason why a deposit law would increase beverage prices. Revenues appear to balance costs. Soft drink bottlers and local brewers would benefit the most, since wholesale figures indicate a savings of 11-40¢/case for refilling bottles in state, as opposed to transporting them out of state. Such a generally neutral effect on beverage prices has been the experience of deposit laws in Oregon, Vermont, and Maine.

Case #2. Most returnables handled by redemption centers, with only bottles going back to distributors, through mobile redemption centers established near grocery stores. This scenario approximates the situation in Vermont, where over 400 redemption centers have been established and now handle 50% of all beverage containers

We surveyed Montana recyclers in July, 1979, and found overwhelming willingness to handle an increased volume of aluminum cans (see Appendix 2) -- even to the point of establishing mobile centers near grocery stores to accept returned beverage containers from consumers. It appears that many grocery stores, especially in larger communities, could unload their entire returnable container business (including bottles) onto recyclers. These recyclers would retain the aluminum cans while returning bottles to distributors or bottlers.

Under this scenario, grocers would save several hundred thousand dollars per year in decreased handling costs. Distributors would experience slight increases in labor costs, but none in warehouse costs since most bottles now sold are technically, if not actually, returnable. Unclaimed deposits would continue to accrue at 12-24¢/case, as would decreased bottling costs resulting from refilling 95% of the bottles sold. Recycling revenues would be split between recyclers and grocers, depending on the nature of their contract.

This scenario assumes some cooperation between recyclers, distributors, and grocers, and a deposit law flexible enough to allow private container handling contracts between the various sectors. Such a bill is not difficult to design, but cooperation depends on the willingness of the parties to make the law work efficiently. If they did so, the commercial cost of beverages would decline significantly -- perhaps as much as 20¢/case for beer and 60¢/case for soft drinks.

Added to either scenario is the savings a deposit law would cause for taxpayers -- a savings which is largely undisputed. As indicated, Montana taxpayers could expect savings of $1-3 million per year, in decreased solid waste management and litter control costs. The future cost savings from decreased pollution, increased recycling, and energy conservation are not quantifiable, but will be substantial.

The most reasonable conclusion we can reach is that a deposit law will result in little or no change in today's beer prices, a slight decrease in soft drink prices, and substantial savings to taxpayers and landowners due to reductions in solid waste, litter cleanup, and litter-related injuries and damage.

(3) Effectiveness. The effectiveness of a deposit law in encouraging a high return rate for recycling and refilling is not in dispute. Container return rates range from an average of 93% in Oregon to 97% in Vermont (Michigan reports a high first-year return rate of 90%). Based on deposit experience to date, we predict a return rate of 85-95% in the first year of a Montana deposit law, and 95% thereafter.

Montana now recycles 4.84 million pounds of aluminum cans each year, or 43% of the 11.3 million pounds sold, and perhaps 1% of the steel beverage cans sold. Together with refilling 95% of the refillable bottles now sold, Montana now refills or recycles about 45% of its beverage containers. This compares to around 50% in Washington and 57% in Arizona -- most of which, as noted, are recovered through container deposits in these two states.

Maine's experience indicates that recycling can flourish under a deposit system. The state's two largest recyclers (Maine Beverage Container Service Company and the Maine Recycling Corporation) report 1978 collections of 1.92 million pounds of aluminum, 7.2 million pounds of steel cans, and 79 million pounds of glass. The metal collections are specified to be all beverage containers.

Beverage industry reports show 845,000 barrels of beer sold in Maine in 1978, and the total soft drink/beer market is around 500 million containers annually -- half refillable bottles. Using assumptions much less generous than used for the evaluation of BIRP -- (that only 75% of the glass collected in Maine was in the form of beverage containers) -- then the two Maine recyclers collected and recycled 120 million non-refillable bottles, 72 million steel cans, and 46 million aluminum cans -- 238 million containers in all, or 95.2% of the non-refillable market.[24]

Maine's recyclers also handle newspaper, cardboard, and food containers. If the remaining 25% of the glass collected is assumed to be food containers, then these recyclers recycled approximately 20% of Maine's glass food container market as well.

Thus Maine's two largest recyclers recycled three times more glass and steel than Washington's -- a state with 3.5 times Maine's population. An advertisement recently placed in Maine newspapers by the "Maine Business Community" lauded their deposit law and credited it with creating the large, new recycling industry.[25]

Deposit laws appear to be two to three times more effective in encouraging beverage container recycling and refilling than even the most effective industry recycling program/litter tax combination. Maine is the only state for which figures are available which has apparently made significant inroads into recycling food containers as well. Revenues from containers returned under the deposit law seem to be responsible for permitting Maine recyclers to handle less profitable materials.

A deposit law in Montana would more than double the recycling of aluminum to 10.7 million pounds, allowing the expansion of Montana's recycling industry from additional revenues.

(a) Energy conservation. A number of studies have been done nationally on energy savings through deposit legislation. All conclude that container deposits would save significant amounts of energy.[26] A Federal Energy Administration study concluded that a 90% refilling/recycling rate for beverage containers under a deposit system would save 44% of the energy used by the beverage industry, or the equivalent of 81,000 barrels of oil per day. An independent study by the Congressional Office of Technology Assessment reached remarkably similar conclusions after analyzing seven different energy studies: "Total energy use for the beverage industry under a deposit law (ranges) from 21% to 61% with estimates clustered around 40% savings. . . 170 British Thermal Units (BTUs) per year, or the equivalent of 80,000 barrels of oil per day." [26]

Because transportation is a relatively insignificant fraction of total beverage industry energy consumption, most of the energy savings under a Montana deposit law would not occur in Montana. If extrapolated from national statistics, recycling and refilling 95% of Montana's beverage containers (0.7% of the 72 billion beverage containers sold annually in the U.S.) would save 600 barrels of oil per day, or 220,000 barrels per year, over the present system.

However, this comparison doesn't adequately account for the current recycling going on in Montana, in our view. Therefore, a more accurate comparison will result from calculating the energy use of the present Montana system and comparing it to the energy used under a deposit system, using three possible systems:

System #1: Container mix as at present, 52% aluminum, 18% steel, 19% refillable bottles, 11% throwaway bottles; 43% of the aluminum cans are recycled, 95% of the refillable bottles are refilled, 1% of the steel cans recycled, the remaining containers landfilled or littered.*

System #2: The best industry recycling system postulated by its advocates: same as System #1, except that 60% of the aluminum cans are recycled and 10% of the steel cans.*

System #3: A deposit system, with container mix 60% aluminum, 5% steel, and 35% refillable bottles, with 95% of the aluminum and steel recycled and 95% of the bottles refilled.

Using the energy consumption figures for various types of beverage containers cited on page 2 , these systems would use the following amounts of energy:

System	Total Energy Use	Average/12-oz Serving
System #1 (current)	2.307 trillion BTU	4,720 BTU/fill
System #2 (best industry system)	2.108 trillion BTU	4,215 BTU/fill
System #3 (deposit system)	1.418 trillion BTU	2,835 BTU/fill

The above comparison is quite generous to Systems 1 and 2. Although both these systems require consumers to deliver aluminum cans and refillable beer bottles to widely-scattered recycling centers and warehouses, neither system is "charged" for the 50-100,000 extra gallons of gasoline such delivery consumes each year. Second, Systems 1 and 2 require separate trucking of recyclable containers, while System 3 uses largely "deadhead" space in the existing beverage distribution system. Nevertheless, System 3 is charged the full energy costs of separate transportation, assuming a 600-mile and 1300-mile combination for refillable beer bottle delivery distances to brewers, local distances for soft-drink bottles, and an average 50-mile radius distribution route.

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*Although some "throwaway" beer bottles are recovered and refilled -- about 10% in Arizona and 20% in Washington -- this process actually wastes energy because a throwaway can be refilled only once and requires customer car delivery to warehouses. Systems I and II are not charged for this waste.

Thus it would be accurate to say that the table understates the energy savings of a deposit system. Even so, System #3 still saves 39% of the energy consumed by the present Montana beverage industry, while System #2 (the best hypothesized industry program) would save only 9.3% of the energy used by the present system.

The annual savings of a deposit system in Montana would be around 890 billion BTU, the equivalent of 420 barrels of oil per day (150,000 barrels of oil per year) or 7 million gallons of gasoline per year. This is enough energy to fuel 8,500 Montana cars for a year, or to provide all the annual power needs for 16,000 Montana homes.

(b) Litter Reduction. Although much-argued in the past, it is now generally conceded that deposit laws sharply reduce beverage container litter. Studies using selected highway test areas cleaned and measured only by state highway researchers have documented the following litter reductions:[27]

State	Beverage Container Litter	All Litter
Oregon	DOWN 66.1% (first year)	DOWN 21%
	DOWN 83.4% (second year)	DOWN 47%
Vermont	DOWN 79.3%	DOWN 32.9%
Maine	DOWN 77%	DOWN 40%

Although no statistics are yet in on Michigan, the following letter from the Wayne County Parks Superintendant indicates the litter reduction reported in the state's most populous county:

> "If 'fantastic' was a valid word in statistics, it would best describe the reductions in litter in Wayne County parks. . . . Our plan is to run one packer 5 days per week as compared to the need for two packers 7 days per week in 1978.
>
> "On Sunday, April 22, 1979, the Wayne County Sheriff's Division estimated that some 40,000 persons were in the Middle Rouge Parkway, a majority of whom were drinking. A large crowd at this time of year during 1978 would have been 15,000 to 20,000 persons, and they would have left possibly 30,000 to 40,000 cans and bottles, many of which would be on the ground or tables. On Monday, April 23, 1979, there were probably less than 500 cans and bottles found in the park, few of which were (Michigan) returnables. . . . In 1978, it would have required every employee to pick up on this type of Monday, whereas in 1979 we were able to continue on storm damage work.

> "Our garbage packers removed approximately 4000 cubic yards of compressed refuse from the park system in 1978. It is our estimate that this will drop well below 2000 cubic yards in 1979, despite an apparent increase in park use by young people.
>
> "The new deposit law will save Wayne County Parks an estimated $300,000.00 during 1979 when all aspects of labor, equipment, and materials are taken into consideration. This would include less wear on garbage packers, mowing units not having to stop for containers or being damaged by some, fewer plastic garbage bags (80,000 one year), lower costs at private dumps, and most importantly, less labor doing a job.
>
> "We would like to point out that the most important value in having the bottle law in effect is the greatly improved day-to-day aesthetics of the Park System."
>
> -- Edwin E. Mika, Parks and Recreation Superintendent, Wayne County, Michigan, May 3, 1979.

Comparisons of Oregon and Washington highway litter show beverage container littering per vehicle-mile is 5.6 times higher in Washington -- just what would be expected if Oregon had an 83% reduction in beverage container litter while Washington's stayed the same. The most scientific study, a survey by the Oregon Journal (Oregon's second largest newspaper), showed:[28]

	Number of Sites	Number of Beverage Containers per Mile	Litter Rate/Mile since last cleaned
Oregon	10	38.5*	1 container/10,130 cars
Washington	10	293.5	1 container/1,757 cars

*of these, only 25% were Oregon deposit containers.

By any reasonable standard, a deposit law will cause a significant reduction in beverage container litter in Montana, in the range of 80% or more after the first year. We can't conclude, however, that a deposit law will reduce other types of litter even though this has occurred in each of the deposit states.**

**The litter reduction in Oregon often cited by deposit law opponents is the 10.6% piece-count reduction reported in the Applied Decisions System (ADS) study. A typical, and misleading, comparison is then made with the 66% reduction alleged in Washington by an industry study. What such an opposition comparison does not say is:

(1) First, the cited Washington study has been withdrawn because of its inconsistent, non-scientific methodology, as noted.

(2) Second, the ADS piece-count figure is compared with the Washington volume-count figure. The ADS reported a 21% reduction in Oregon litter volume -- making its deposit law more effective than Washington's litter tax already.
(Note continued at bottom of next page.)

(4) Side Effects. Deposit laws have been blamed and credited for a bewildering variety of effects. Upon examination, these effects are usually found to be attributable to other factors. The universe apparently does not revolve around beverage container deposits.

(a) Beverage consumption. The argument that deposit laws reduce beverage consumption is largely defunct, though it is still raised occasionally. Since 1970, beer tax receipts show a 20% increase in Oregon and a 23% increase in Washington, per capita. While deposit opponents have tried to portray this small difference in increases as a dampening effect of Oregon's bottle bill, the fact is that container beer sales have increased much faster in Oregon than in Washington. The total numbers of gallons sold, however, lagged slightly behind for the simple reason that Oregon's beer market is dominated by the 11-ounce bottle, while Washington's is dominated by 12-ounce bottles and cans. Oregon container sales increased a whopping 13% between pre-law 1971 and post-law 1973, and container sales are the only kind affected by a deposit.[29]

A similar argument has been raised in Vermont, where beer sales fell the first year its deposit law was effective, but a poor tourist season (resulting in a general decline in sales of tourist commodities) due to light snowpack and flooding, and a move by New Hampshire to lower its drinking age from 21 to 18 (cutting off Vermont sales to New Hampshire youth), are more likely culprits.[30] In any case Vermont beverage sales were up 40% since 1974. Similarly, implementation of deposit laws in Maine and Michigan coincided with a raising of both states' drinking ages, so the impact of the deposit laws are hard to measure.

Correlating anything with beverage sales increases or declines is next to impossible. Picking a random year from the U.S. Brewers' Almanac (1976-77) shows per-capita beer consumption declines in Alaska, Colorado, Idaho, Maine, Nevada, New Hampshire, Vermont, Wisconsin, and Wyoming. Montana per-capita sales declined in 1972 and 1975. If Oregon's deposit law is going to be blamed for fluctuations in that state's beer sales (from 1.4%/year to 5.7%/year increases), then perhaps Washington's litter tax should be blamed for that state's fluctuations (from 1.5%/year to 8.2%/year), and the absence of any approach for Montana's (from 1.2%/year to 14.7%/year), for the 1970-78 period.

(b) Employment. Based on experience in other states, we believe a deposit law in Montana would cause a shift toward refillable and recyclable containers as estimated in the table on the following page:

(Note continued from previous page).
(3) Third, the ADS study covered only the first year of Oregon's deposit law, while the litter tax study took place three years after the tax took effect. The second year of Oregon's deposit law (using the same highway department report cited by ADS) brought a litter volume reduction of 47%, including an 83% reduction in beverage container litter and a 21% reduction in non-beverage container litter. Thus Oregon's deposit law appears around three times more effective in reducing litter volumes than Washington's litter tax.

NEW CONTAINERS NEEDED ANNUALLY:	PRE-LAW (NUMBER)	POST-LAW (NUMBER)	% CHANGE
Aluminum cans	260,000,000	300,000,000	+ 15.4%
Steel cans	90,000,000	25,000,000	- 72. %
Refillable bottles	4,500,000	8,250,000	+ 96. %
Throwaway bottles	55,000,000	0	-100. %
TOTAL	410,000,000	333,000,000	-100. %

No primary glass or steel industries exist in Montana. Therefore, the replacement of throwaway glass and steel containers with recyclable aluminum and refillable bottles would not affect Montana employment at all. Elsewhere, glass and steel industries would lose around 25 and 50 jobs respectively, due to reductions in the Montana market. The aluminum can production industry would gain around 20 jobs, which would also not occur in Montana. Net out-of-state production jobs lost would total around 55.

We can find no job which would be lost in Montana due to a deposit law. The Oregon deposit law created 575 new truck-driving, container handling, distributor warehouse, bottle washing, and recycling jobs. Vermont added 150 new jobs in beverage distribution and 200-300 jobs in recycling centers.[30]

A deposit law would more than double the quantity of recyclable aluminum received by recycling industries in Montana, allowing significant expansion. Based on other states' experiences, our best projection is that a deposit law would create 80 jobs in Montana beverage distribution, 150 jobs in retailing, and 50-100 jobs in recycling. Montana would lose no jobs and gain 280-330 new jobs from a deposit law.

The net national employment gain from a Montana deposit system would be 235-285 jobs, with an in-state payroll gain of around $3.5 million.* Most of the jobs gained in out-of-state production industries would pay more than those lost.[31]

National studies indicate 60,000 jobs would be gained by a nationwide deposit law, with most of the jobs losses met by phased attrition as employees quit and jobs turned over are not filled.[31]

(c) Sanitation. No health complaints have been made to any agencies in states with deposit laws. Vermont's Department of Health found "absolutely no health or sanitation problems associated in any way with deposit legislation." Oregon and Maine inspectors have made similar reports. Montana's Department of Health and Environmental Sciences reports not a single health-related complaint resulting from the 92 million returnable bottles Montana retailers now handle.[32]

(d) Consumer choice. Allegations have been made that deposit laws reduce the choice of brands and containers available by mandating an all-returnable system. A Montana deposit law opponent stated flatly to a legislative hearing that "all the foreign beers disappeared (in Oregon) when the bottle bill took effect." Oregon Liquor Control Commission reports show this statement is absolutely untrue -- from the year the bottle bill took effect until 1979, the number of both foreign and domestic brands of beer sold in Oregon has steadily increased. Vermont, whose population is smaller than Montana's, had a similar experience.[33]

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*Based on 150 distribution jobs at $17,000/year each, and 100 retail and recycling jobs at $7,000/year.

In non-deposit states, beverages are sold in kegs, cups, bottles, and cans. In deposit law states, beverages are sold in kegs, cups, bottles, and cans. It is true that the "throwaway bottle" generally disappears once a deposit law takes effect, but a throwaway bottle is simply a bottle for which the consumer is charged, but for which no convenient means of refund is offered. The consumer now has no choice but to purchase beer in throwaway bottles in Montana groceries (which makes the often-repeated statement, "consumers prefer throwaways" a self-fulfilling prophecy) -- a deposit system would increase consumer choice by giving the purchaser the option to rent or buy the container.

In any case, polls in deposit states have consistently shown overwhelming citizen support for their law, regardless of container mix.

(5) Status of current deposit laws:

-- Oregon. According to an Applied Decisions System survey, the Oregon deposit law is supported by 90% of that state's consumers polled, and 95% of those who expressed an opinion. No effort has been made to repeal the bill.

-- Vermont. Citizen support for Vermont's deposit law has grown from 71% in 1975 to 93% in 1977, according to polls by Decision Research Corporation. Significantly, James Holmes, executive director of the Vermont Retail Grocers Association, estimates that 95% of Vermont's grocers now support the deposit law. No efforts at repeal have been made since 1975, when the legislature responded by strengthening the law.[34]

-- Maine. A referendum (sponsored by one beer distributor) will appear on the November 1979 ballot to repeal Maine's deposit law. However, the state's beverage distributors have voted not to support the repeal effort because it has "no reasonable chance of success." Consumer support for the Maine law has increased from the 57% who voted for it in the 1976 election to 72% in 1979.

-- Michigan. Michigan grocers report consumer complaints about beer prices, and one shooting originated in an argument over bottle refunds. Still, the only polls taken indicate support for the law is high. A newspaper poll reported "over two thirds" of those surveyed approved of the law, while a glass industry survey (not released) reportedly "showed the deposit law ranked alongside motherhood in voter respect."[35] A repeal effort has been threatened for several months, but has not materialized.

V. Conclusions Regarding Beverage Container Proposals

NO STATE ACTION

(1) Throwaway beverage containers waste resources, energy, and tax dollars. Their true cost is not reflected in the market price of beverages because of government subsidies for litter cleanup, solid waste management, pollution control and damages, raw materials extraction and transportation, and the future costs of energy and materials now being wasted.

(2) The current policy of "no state action" unfairly subsidizes throwaway containers. It is the most costly policy, running an annual tab for litter damages and solid waste management of $2 million or more. "No state action" is not cost-effective.

EFFECTIVENESS OF LITTER TAXES, INDUSTRY PROGRAMS, AND DEPOSIT SYSTEMS IN REDUCING LITTER

(3) Deposit systems are three times more effective in reducing litter than any other approach (see Table 1).

(4) Washington's litter tax appears largely ineffective in reducing litter. The officially-reported 15% decline is less than the 21% decline in Oregon's non-beverage container litter achieved without a litter tax.

(5) The only data available suggests that recycling programs, by themselves, are also not effective in reducing litter. Washington's beverage container litter rate is 5.6 times higher than Oregon's, according to a comparative study, which equals an 83% decline in Oregon's litter rate (as measured) and no decline in Washington's -- despite the fact that Washington has a well-developed recycling system. Apparently litterers are not the kind of people who are willing to lose money and drive out of their way to use a recycling center. Containers with the lowest recycling value are those most likely to be littered.

(6) Anti-litter programs based on a combination of educating and imploring citizens not to litter have proven ineffective. Litterers are immune to them. The only way to reduce litter is to provide an economic incentive not to. Deposit systems are the only approaches proven effective in this regard.

EFFECTIVENESS IN RECOVERING BEVERAGE CONTAINERS FOR REFILLING AND RECYCLING

(7) Deposit systems are two to three times more effective in promoting beverage container returns than even the most developed industry recycling program. Even in states with advanced recycling networks, more beverage containers are recovered through deposits than through recycling centers.

(8) States without litter taxes seem to have just as effective recycling systems as states with litter taxes.

(9) The most optomistic recovery rate hypothesized for an industry program would be 60% of the aluminum containers, 10% of the steel, and 25% of the glass throwaways -- a level not yet achieved in Arizona or Washington, after 8 years. At this level, an industry program would save 10% of the energy now used by the beverage industry in Montana, while a deposit system at a typical 95% return rate would save 40%.

SIDE EFFECTS

(10) None of the three proposed systems will have any significant effect on beverage consumption, sanitation, container choices, or foreign policy. Both industry recycling centers and a deposit system have the potential for creating scores of jobs in Montana, with no jobs lost. A litter tax has the potential to create 5-10 jobs in state government.

(11) Litter taxes have been repealed in three of the five states where implemented. Two industry programs have been implemented, with the one in Arizona now 8 years old and the one in Idaho ended after four months. Of the four active deposit laws, none have been repealed and all appear to have a large measure of public support.

INCENTIVES TO RETURN BEVERAGE CONTAINERS

State	% Recycled or Refilled	Number of Containers Returned Thru Industry Incentives	Number of containers Returned Thru Deposits
Arizona	56.6%	400 million (27.9%)	410 million (28.7%)
Washington	50.5%	430 million (21.8%)	560 million (28.7%)
Montana	42.0%	120 million (24.0%)	90 million (18.0%)
Maine	95.2%	-	475 million (95.2%)
Oregon	93.2%	-	1,200 million (93.2%)
Vermont	97.0%	-	350 million (97.0%)
Michigan	90 %	-	3,600 million (90 %)

LITTER REDUCTION

State	Litter Reduction (Total)	Litter Reduction (bev. cont.)
Arizona (industry program)	*	*
Washington (litter tax)	DOWN 15%	*
Oregon (deposit)	DOWN 47%	DOWN 83%
Vermont (deposit)	DOWN 35%	DOWN 79%
Maine (deposit)	DOWN 40%	DOWN 77%
Michigan (deposit)	*	*

* No studies done.

COSTS

(12) A litter tax in Montana would cost $350,000 to $500,000 per year, with only marginal benefits. A litter tax is not cost-effective.

(13) Montana has poor recycling markets for glass and steel. An industry recycling program similar to Arizona's, or that planned for Idaho, would run an annual deficit of $100,000 to over $1 million, depending on its effectiveness (the more glass and steel containers handled, the larger the deficit), its advertising and promotion budget (Idaho's program planned extensive media publicity, contests, and consultant services), and the degree to which it used existing equipment and space. Any deficit would be made up by beverage consumers in the form of higher prices. Taxpayers, however, would save on solid waste costs in an amount roughly equal to the program's deficit. An effective recycling program would resemble an inefficient deposit system.

(14) What, then, is the real difference between a deposit system and a hypothetical (none yet exists) recycling center program which recovers a large percentage of the state's beverage containers? The similarities are more striking than the

differences:

(a) Both systems charge the consumer a deposit. Under a deposit system, the consumer obtains the refund when he/she returns the container to the grocery. Under a recycling center program, the consumer is "paid" (refunded) roughly 1¢ per container when he/she takes the container to a recycling center or distributor warehouse. The difference, then, is that a deposit system provides a convenient means of return, while the industry program requires the consumer to drive out of their way to widely-scattered distributor warehouses and recycling centers to return containers worth only a few cents per 6-pack. In terms of time and car expenses, most consumers lose money in the transaction, which may explain why industry programs average 30-40% return rates, at best.

(b) Both systems require consumers to store and transport containers. An industry program, however, requires the consumer to accumulate a large amount of beverage containers (several cases) to make driving them to a recycling center cost-effective.

(c) Both systems require additional distributor labor to handle returned containers, as well as additional warehouse space. The industry program requires setting up a separate system of recycling centers, labor, and transportation. The deposit system uses, where possible, "deadhead" space in existing warehouses and trucks.

(d) Industry programs require sorting of cans by type, sorting of glass by color, crushing of glass for recycling (which is much less efficient than refilling bottles whole), and separation of aluminum from steel in bi-metal cans. Deposit systems require the sorting of containers according to distributor of origin, but this sorting can be minimized by such means as centralized deposit accounts or pooling among distributors.

(15) In the three states with established deposit systems, beer prices have generally remained the same relative to neighboring states, while soft drink prices have declined. Taxpayers have saved hundreds of thousands, sometimes millions, of dollars per year in solid waste and litter management costs. A non-discriminatory deposit system is the most cost-effective means of handling the beverage container problem in Montana.

COMPARISON OF FOUR BEVERAGE CONTAINER HANDLING SYSTEMS

	Litter Tax	Industry Recycling Program	Deposit Law	No State Action
Resource Conservation	POOR marginal effect on recycling, though positive	FAIR/GOOD 30% return rate, no increase in refilling	EXCELLENT 95% return rate, increased refilling	POOR subsidizes throwaway containers
Energy Conservation	POOR no incentive to conserve	FAIR inefficient, centralized centers, possible 10% savings, at best	EXCELLENT would save 40% of the energy now used	POOR subsidizes energy waste
Litter Reduction	FAIR 15% reduction in 4 years No incentive not to litter	FAIR more recycling means less litter but only marginal reduction	GOOD 40% reduction in total litter, average	POOR no incentive not to litter
Solid Waste Reduction	POOR No reduction in waste volume	FAIR/GOOD perhaps 10% reduction in beverage container waste	GOOD 90% reduction in beverage container waste, 6-7% reduction overall	POOR no reduction
Cost to Consumers	FAIR Costs $350,000 per year	GOOD Most costs paid from recycling revenues, but not all	GOOD No change in beer prices, slight reduction in soft drink prices	FAIR will cause higher prices later
Cost to Taxpayers	FAIR Cost generally passed on to consumers	EXCELLENT No taxpayer subsidy, except for promotion, saves in solid waste	EXCELLENT Negligible administrative costs, saves in solid waste and litter	POOR Costs in excess of $2 million per year for solid waste & litter
Effect on Government	POOR creates new state agency and costs	EXCELLENT reduces government costs slightly	EXCELLENT reduces government costs for solid waste & litter	POOR requires costly gov't waste and litter programs
Effect on Citizens	FAIR Anti-litter, pro-recycling message, but unfair tax	GOOD Promotes involvement but requires citizen subsidy	EXCELLENT 90-95% citizen involvement, no gov't program	POOR tries to manage problems, not solve them
Effect on Employment	FAIR 5-10 gov't jobs	GOOD 100-150 new jobs	GOOD 250-300 new jobs	POOR will cost jobs
Cost Efficiency	POOR new tax, new state agency, marginal results	FAIR operates at deficit, needs customers willing to lose money to recycle	EXCELLENT net savings to consumers/taxpayers, saves energy, resources, and reduces litter	POOR subsidizes waste, hampers recycling, provides no incentives to correct problems

PROBLEMS AND PROPOSED SOLUTIONS -- FOOD CONTAINERS

If Montana develops and effective policy for dealing with food containers, it will be the first state to have done so.

The problem of food containers is very different from that of beverage containers. While beverage containers comprise a class of generally uniform packaging (four basic types of containers) originating from a fixed group of wholesalers, food containers come in a bewildering variety from an irregular distribution network. While liquid-holding beverage containers can, in most cases, be washed and re-filled, food containers with solid-adhering contaminants are much more difficult to wash and re-fill.

We define "food container" in the broadest possible sense, to include all containers which hold food, whether sold in gorceries, restaurants, or other retail outlets. The table presented below shows the best estimate (extrapolated from national figures) of the resources used by food containers sold in Montana each year.

Food containers don't comprise a serious litter problem and thus haven't received the attention focused on beverage containers. Food containers make up only 10% of litter by volume and less than 2% of permanent/hazardous litter.

FOOD CONTAINER MATERIALS IN SOLID WASTE

Material	Annual Tonnage	Number
Glass	25,000	45 million
Paper	16,500	400 million?
Steel	12,000	115 million
Plastic	1,000	20 million
Aluminum	500	20 million?
TOTAL	55,000	600 million?

The 55,000 tons of food containers thrown out in Montana each year do represent a waste of resources. They do cost over $1.6 million per year (at $30/ton) to collect and dispose of. They do represent a waste of energy, though (because of the low volume of aluminum containers) food containers sold in Montana use less than one-third as much energy as is used by beverage industry manufacturing and delivery.

Of the various alternatives specified in HJR 56, none seems appropriate to the problem of food containers. A deposit system, for example, would produce a high return rate, but this would do little good if the recovered containers have no recycling market. A litter tax would not solve, or even help, the problem since food containers aren't much of a litter problem. An industry recycling program is strapped for lack of markets. "No state action" fails to solve the resource and tax waste throwaway food containers represent.

The state of Montana is faced with two alternatives: either very restrictive legislation which mandates that all food containers be re-filled or accepted for recycling, or an incentive system designed to produce the same result. Even with legislation, however, food containers won't be recycled until glass, steel, paper, and plastic recycling markets develop. And markets won't develop until some way can be found to induce the Interstate Commerce Commission (ICC) to lower its prohibitivel high -- and artificial -- rail freight rates which discriminate against recycled materials. Recycled glass, for example, costs more than $50/ton to ship to Seattle, while raw silica sand costs only $13.50/ton. Iron scrap costs $25.95/ton to ship to Seattle, but iron ore only costs $9.27/ton.

The 46th Montana legislature, in view of these problems, passed HJR 45, which calls upon the I.C.C. to set rail freight rates "which don't discriminate against recycled materials." Others have called for similar revisions.[36]

Proposed program for handling food containers: The experience in Maine indicates that the growth and high citizen participation rate in recycling made possible by a beverage container deposit system can promote recycling of food containers as well. Maine's two largest recyclers recycle at least 25% of the state's glass food containers as well as 95% if its glass beverage containers -- more than triple the volume reported in any other state, even those with more population.

A Montana beverage container deposit law should be flexible enough to permit private recyclers to set up redemption centers at or near grocery stores to handle returned beverage containers. Two-thirds of Montana's recyclers expressed a willingness to expand in such a manner under a deposit law (see appendix).

Such expansion would seem to overcome one of the thorniest food container recycling problems: that of low consumer participation which has plagued recycling programs in Washington and Arizona. If 95% of an area's consumers are regularly delivering their beverage containers to a redemption center at their grocery, it would not be much problem for them to deliver recyclable glass and steel food containers

The second problem is the need to create recycling markets through incentives. An incentive program could operate in a number of ways. One would be for the state, or local jurisdictions, to contract with recyclers to handle waste materials, paying the current cost of $30 for each ton of material the recycler diverted from local collection and disposal services. Thus glass, which has a market price of $33 per ton in Seattle ($17 less than its $50/ton shipping costs) would suddenly have a "value" to the Montana recycler of $33 plus $30, or $63/ton.

Similarly, steel food containers, which now have a market value of $15/ton in Salt Lake City and Seattle, would acquire a value of $45/ton.

At some point, the rising cost of solid waste management and rising value of recycled materials would allow many materials not now recyclable to be economically collected by recyclers -- if recyclers could receive all or a portion of the savings they generate to solid waste agencies. It is important to recognize that such a program would not be a subsidy of private recyclers -- it would merely involve state action to pass along solid waste savings recycling brings about to the recyclers themselves.

Another incentive program, with similar costs, would be for the state to guarantee shipping of any recycled material to the nearest market where it can be recycled. (Thus recyclers would simply collect the material, say glass, ship it to market, collect the sales revenue, and send the shipping bill to the state.)

Either of these programs, if implemented together with a beverage container deposit system, could produce both a high consumer participation rate and viable markets for recycled materials. Either program would also require expenditure of state revenues in excess of the savings generated by solid waste reductions, because of time lag and because solid waste management involves both fixed costs (costs which are the same regardless of the tonnage handled) and variable costs (costs which are less if less tonnage is handled). There is also a jurisdictional problem, in that local jurisdictions would realize the savings in solid waste costs resulting from recycling, but the state would pick up the tab. Finally, the program would entail administrative costs for accounting, confirming recycling center billings, and paying the rebate to recyclers.

If a 60% participation rate could be achieved, 23,000 tons of solid waste could be diverted from landfilling at an annual savings of over $700,000. The savings would be rebated to the recyclers. Additional costs of the program could be recouped by the state by means of a "recycling tax" levied against the industries and/or wholesalers who market food containers. Historically, these industries have indicated they don't object to a "litter tax," so it seems reasonable to assume they wouldn't object to a recycling tax which is both more effective and costs less to implement. Rather than being permanent, the tax could be gradually lifted as the value of recycled materials rises, transportation rates are lowered, or solid waste management costs rise. The Congressional Office of Technology Assessment argues that transportation rates for recycled materials should be 29-52% lower than they are today.[36]

It seems time for Montana to make recyclers a paid component of the state's solid waste management system. Landfilling waste materials doesn't pay for itself and never will; recycling doesn't now pay for itself, but could if allowed its economic due in initial years. Our recommendation is for a two-step state policy which makes recycling the primary component of waste management and which is largely self-executing within the economic system:

Step #1: A beverage container deposit law which allows for recycling/redemption centers to collect beverage containers from consumers. Such a law would allow the expansion of existing recycling operations by (a) producing a high 95% consumer participation rate, and (b) providing a 250% gain in aluminum revenues. The high visibility and convenience of grocery parking lot recycling drop-offs, together with recycler-consumer contact on a daily basis, should produce a generally higher return for food containers than scattered recycling centers in most states generate.

Step #2: A contractual agreement between the state of Montana to rebate to recyclers an amount equal to the savings they generate by reducing solid waste volumes. Costs in excess of savings should be made up through a recycling tax assessed against food container industries.

Problems will occur under this system. Recyclers, for example, will need quick refunds during their initial days to make up for the refunds they front to beverage container consumers. Grocers may not want recyclers in their parking lots, but in exchange for unloading their entire returnable container handling volume on recyclers arrangements (as have occurred in Vermont) seem likely. The advantages of such a cicitzen-oriented approach to recycling, which requires no government program to administer, seem to far outweigh the difficulties of transition.

EVALUATION OF MONTANA'S SOLID WASTE MANAGEMENT STRATEGY REPORT

HJR 56 mandates evaluation of the State Solid Waste Management Strategy Report of 1976. Following is our evaluation.

The Strategy Report was finalized in December, 1976, by the consulting firm of Henningson, Durham, and Richardson, to provide the state of Montana with a comprehensive plan for (a) recovering those materials and combustible fuel from solid waste which can be economically marketed, and (b) disposing of those materials which remain.

The Report recommended a "least cost facility configuration" consisting of a system of 46 consolidated landfills and three resource recovery facilities -- one each in the Billings, Great Falls, and Missoula areas -- to replace the present system of over 200 landfills. In addition to extending landfill life and meeting pollution standards, the Report concluded, such a system would cost less than simple landfilling because of revenues from recovered materials and energy.

The Strategy Report estimated the three facilities would cost from $8.4 million (for energy recovery alone) to $24.1 million (for recovery of energy, ferrous metal, and non-ferrous metals).[37] In return, these recovery plants would produce combustible fuel with a heating value equal to 150,000 tons of coal, secondary metals with a value of roughly $1 million (19,000 tons of ferrous metal and 3,000 tons of non-ferrous), and extend landfill life in these regions by a factor of six times.

Although some have tried to portray this resource recovery plan as an alternative to either deposit legislation or citizen-based recycling programs, in fact it is not. The Montana state Solid Waste Division of the Department of Health and Environmental Sciences views deposit/recycling systems as quite compatible with resource recovery;[38] in practice, recycling by source separation (ie, citizen and business separation of recyclable materials before they become garbage) may even improve the operation of a resource recovery plant. There are a number of reasons for this:

(1) Resource recovery facilities will not be built for a number of years. No one we spoke with believed metals recovery would take place within 5 years, and probably not before 1990, if at all. Deposit and recycling programs can be implemented within one year to prevent another 10 years of landfilling valuable aluminum, glass, and steel.

(2) Resource recovery facilities will have little or no effect on the litter problem deposit laws are designed to deal with.

(3) The most feasible resource recovery system now being examined by state planners does not recover any materials -- only combustible waste for burning. Prior removal of non-combustible glass, aluminum, and steel would improve the heat content of the remaining waste and reduce the residue from its combustion. Virtually all of the successes in resource recovery plants across the country have been in separating combustible fuel -- few have had any success in producing salable metals.[39]

(4) Even if metals recovery was designed into the three resource recovery plants, at an additional cost of $13.5 million, deposit/recycling programs would still be more effective means of handling container materials, for the following reasons:

(a) The Strategy Report found glass recovery from a resource recovery plant infeasible. If not separated, glass waste will interfere with other resource recovery options, including aluminum recovery. Therefore, a deposit/recycling system which removes a significant share of the glass from waste before it's processed in a resource recovery plant will improve its other operations.

(b) Bi-metal cans (cans which have steel bodies and aluminum tops) interfere with both ferrous metals recovery and aluminum recovery at a centralized plant. According to a companion report to the Strategy Report, bi-metal beverage cans "degrade the value of the ferrous metals."[40] Again, prior removal of bi-metal cans through a deposit system would aid the plant's recovery of other materials.

(c) Industry specifications require that aluminum beverage cans be separated from other types of aluminum, a process which is not developed in resource recovery technology. Prior separation of aluminum cans through a deposit system would increase the value of other types of aluminum recovered centrally.[40]

(d) The resource recovery plant configuration, as recommended in the Strategy Report, would actually recover less aluminum than would a deposit/recycling system -- the Report doesn't appear to take into account even current recycling. Only 3,000 tons of "non-ferrous metals" could be recovered from just three regions in the state using resource recovery plants alone, while a deposit law would recover 5,300 tons of aluminum from the whole state. Current recycling recovers 2,400 tons of aluminum already, indicating the expensive add-on equipment necessary to separate aluminum wouldn't produce much of a bonus. Deposit/recycling programs have significantly more potential to recover aluminum than do centralized plants.

(e) Metals recovered from a resource recovery plant are contaminated with other materials and command a much lower price when sold. Source separation through a deposit/recycling system produces much cleaner, higher-grade scrap because the aluminum and steel cans are never mixed with garbage in the first place. Even fewer, and lower-paying, markets exist for contaminated scrap than for clean scrap. Great Falls, for example, has been unable to market the steel recovered from its plant because it doesn't meet industry specifications.

(f) Resource recovery plants can't produce whole bottles for refilling, which is the most feasible means of recycling glass containers -- deposit systems can and do re-fill bottles whole.

(5) The cost of resource recovery plants have a tendency to skyrocket once the facility is ordered due to the newness of the technology. Thus, while the Strategy Report estimates the cost at $25,000 per daily ton of capacity (for three 300-ton plants), more recent estimates for similar-scale facilities indicate costs in excess of $35,000 per daily ton. Of the three operating resource recovery plants designed to separate aluminum, two have failed to produce a marketable product and all three have failed to produce high-quality scrap. In the Ames, Iowa, plant (which cost $25,000 per daily ton back in 1975), aluminum recovery equipment ha never functioned properly, and the only aluminum being recovered is hand-separated at the plant. After study, the Environmental Protection Agency concluded, "Neither glass nor aluminum recovery has yet proven to be a cost-effective addition to a commercial resource recovery plant."[41] Finally, a resource recovery facility which is so inflexibly designed that it requires a fixed tonnage of garbage to be cost-effective is vulnerable to failure on a number of different fronts -- waste generation rates lower than anticipated, recycling through industry or deposit programs, illicit dumping, changes in the composition of waste materials, and many other factors. State solid waste officials have indicated that revenues from metal sales are only marginal factors in the economics of resource recovery.[38]

The best solid waste strategy for Montana -- and the one the Solid Waste Division of the D.H.E.S. seems to be following -- is to recover at the source all materials which can be recovered, process for energy recovery where economic, and landfill the remainder. Source separation is by far the most feasible means of aluminum and glass recovery since it recovers materials before they're mixed -- and once garbage is mixed, it's very difficult and costly to un-mix. Deposit systems have proven success in recovering 95% or more of the aluminum and bottles through source separation. Designing a combination of source separation and resource recovery systems which work to complement each other seems a far better solution than attempting to portray either solution alone as a mutually exclusive alternative to the other.

FOOTNOTES

1. U.S. Environmental Protection Agency, Resource Recovery and Waste Reduction, Fourth Report to Congress, 1977, p. 17.
   Henningson, Durham & Richardson, State Solid Waste Management Strategy, Executive Summary, Montana Department of Health and Environmental Sciences, 1976.
2. Resource Conservation Committee, Committee Findings and Staff Papers on National Beverage Container Deposits, January 1978, pp. 9-30 - 9-45.
3. Montana Department of Natural Resources and Conservation, Montana Energy Almanac, 1978.
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11. State of Washington, Department of Ecology, Model Litter Control Act (folder), 1979.
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    Letter, Michael Aarhaus to Jill Schatz, 1978.
14. Oregon Department of Environmental Quality, Recycling Information (Bill Bree).
15. Washington Department of Ecology, Recycling Hotline (Alice Adams).
16. "Highway Litter Is 'a Disgrace, The Worst Ever,' Dixy Says," Seattle Post-Intelligencer, November 4, 1978.
    "Ray Lectures Officials on Roadside Litter," Seattle Times, November 4, 1978.
17. "The Senate Runs for Cover," Sacramento Bee, February 17, 1979.
    "State's Anti-Litter Tax Repealed by Senate," Sacramento Union, February 13, 1979.
18. TRIIP program brochure, 1979.
19. Arizona State Tax Commission, annual luxury tax receipts, 1977.
    U.S. Brewers Association, Brewers Almanac, 1978.
20. BIRP-Arizona News, January 1979.

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28. "Oregon, Washington Roadsides Compared," Oregon Journal, October 25, 1976.
29. Oregon Liquor Control Commission, "Statement of Beer Sales in Oregon," December report, 1970-79.
30. Stanford Environmental Law Society, Disposing of Non-Returnables, January 1975, p. 88.
31. Applied Decisions Systems, "Study of the Effectiveness and Impact of the Oregon Minimum Deposit Law," Salem, Oregon, October 1974.
    U.S. General Accounting Office, op cit.
32. Stanford Environmental Law Society, op cit, p. 119.
33. Jeffords, op cit; Oregon Liquor Control Commission, op cit.
34. Jeffords, op cit; Applied Decisions Systems, op cit.
35. Nancy Dunn, "State Residents Like Bottle Bill," The State Journal, Lansing, September 3, 1979.
    Bangor Daily News poll, Bangor, Maine.
36. Office of Technology Assessment, pp. 56-63.
37. Henningson, Durham, and Richardson, op cit, executive summary, p. 11.
38. Conversation with Duane Robertson, Montana State Department of Health and Environmental Sciences, Solid Waste Division, 14 September 1979.
39. See, for example, the Peccia, Roberts & Associates study on Helena solid waste.
40. Henningson, Durham, and Richardson, "Energy and Secondary Materials Market Report," State of Montana, May 1976, pp. I-3, III-5, III-9, III-10, and Reynolds Aluminum Letter in Appendix.
41. Eileen Clausen, Environmental Protection Agency, statement to Congressional Committee, September 14, 1976.

APPENDIX 1 -- LITTER STUDIES

The contribution of beverage containers to total litter volumes, according to all studies we could find, is as follows:

Area Studied	Pct. Beverage Containers Piece Count	Pct. Beverage Containers Volume Count
California[1]	22%	-
Vermont[2]	39%	36%
Vermont[1]	-	90%
Colorado[3]	42%	-
Florida[3]	(18-37%) 27.5% (median)	-
Iowa[4]	30%	-
Oregon[1]	30%	-
Oregon[3]	-	62%
Keep America Beautiful[5]	(20-32%) 26% (median)	33%
Kentucky[1]	(46-52%) 49% (median)	-
Maryland[6]	29%	-
Michigan[7] (mostly urban)	9%	18%
Texas[1]	38%	-
AVERAGE	31%	48%

1. U.S. General Accounting Office, ref. 26, p. 23 (secondary)
2. Resource Conservation Committee, ref. 2, p. 9-28 to 9-29 (secondary)
3. Stanford Environmental Law Society, ref. 30, p. 7 (secondary)
4. Iowa Public Interest Research Group, "The Impact of Restricting Beverage Container Use in Iowa," January 1, 1977 (primary).
5. Office of Technology Assessment, ref. 9, p. 193 (secondary).
6. Keep America Beautiful, "A National Study of Roadside Litter," October, 1969, Table 1 (primary).
7. Daniel B. Syrek, Institute for Applied Research, "Michigan Litter: Before," report to Michigan House of Representatives, December 31, 1978 (primary).

APPENDIX 2 -- E.I.C. SURVEY OF MONTANA RECYCLING INDUSTRIES

In order to establish baseline data on recycling in Montana, the Environmental Information Center conducted a survey of recyclers in July, 1979. Eighteen of Montana's 23 recyclers responded to the survey. For purposes of analysis, recyclers were divided into three groups: commercial businesses (2), community service organizations (12), and beverage distributors (4). The second category includes centers operated by developmentally disabled citizens.

The survey was done with the idea of determining recyclers' attitudes on approaches to handling the container problem. Aluminum cans are the bread and butter of Montana's recyclers, and the only material which consistently earns their operations a profit.

Of the 11,800 tons of aluminum cans available for recycling in Montana, 4,840 tons, or 42.8% were actually collected and recycled in 1979. The following table shows the amount of aluminum recycled by recycler:

Recycler	Aluminum Recycled in 1978
Montana Recycling	2,500,000 pounds
Pacific Hide & Fur*	1,700,000
Energy Conservation Services	240,000
Flathead Industries	300,000
Libby Recycling Center	100,000
	4,840,000 pounds

*reported to the U.S. Brewers' Association

Ninety-five percent of the aluminum recycled in Montana is sold to either Montana Recycling or Pacific Hide & Fur.

Eleven of the 18 recyclers surveyed also accepted glass beverage containers, while seven accept newspaper. A few recyclers accept other items such as steel cans, car batteries (lead), license plates, and scrap copper.

Six of the 18 recyclers have magnetic separation machines to separate aluminum from steel cans. Nearly all the other recyclers made unsolicited comments criticizing the presence of bi-metal (steel) cans in the market, several implying that the extra time needed to sort out steel cans threatened the economic viability of their businesses.

Recyclers' opinions on various approaches to handling the container problem tended to divide along the previously described category lines. As the following table shows, commercial and community recyclers support a ban on all non-recyclable contair by a 13-1 margin and deposit legislation by an 8-5 margin, while distributors oppose both concepts.

Should Montana ban non-returnable/non recyclable containers?

	Yes	No
Commercial Recyclers	2	0
Community Service Recyclers	11	1
Beverage Distributors	1	3
	14	4

Do you support or oppose mandatory deposits on all beverage containers?

	Support	Oppose
Commercial Recyclers	0*	2*
Community Service Recyclers	8	3
Beverage distributors	0	4
	8	9

*(one support national deposits)

Those opposing deposit legislation usually expressed concern over who would "control" the aluminum cans. Several worried that a deposit law would make it profitable for other organizations to enter the recycling business and compete with them. Several also mentioned their greatest fear would be a deposit law of the type that discriminated against cans in favor of bottles. Distributors all cited increases in consumer costs as a reason for opposing such a law.

Recyclers were also asked if they would support or oppose collecting containers from grocery stores under a deposit system and were evenly divided -- again, with distributors unanimously opposed. However, recyclers indicated a general willingness to expand their operations to include collection/refund centers in grocery parking lots to collect beverage containers directly from consumers:

Would you support or oppose dealing with grocery stores instead of with consumers as a method of collecting beverage containers for recycling?

	Support	Oppose
Commercial Recyclers	1	1
Community Service Recyclers	8	4
Beverage Distributors	0	3
	9	8

Would you be willing to expand your operations to collect beverage containers in grocery store parking lots under a deposit system?

	Yes	Yes (w/reservations)	No
Commercial Recyclers	2	0	0
Community Service Recyclers	3	5	4
Beverage Distributors	2	0	2
	7	5	6

Five recyclers were already considering such a move. Several community service organizations expressed the concern that such a system might get too large to handle.

Most recyclers didn't think coming up with "front end" money necessary to refund deposits to consumers would be a large problem:

Is front-end money to refund deposits a problem?

	Large Problem	Minor Problem	No Problem
Commercial Recyclers	1	1	0
Community Service Recyclers	4	6	2
Beverage Distributors	2	0	2
	7	7	4

Several recyclers said banks and local organizations had been very helpful in assisting them with necessary funding.

With regard to an industry recycling program in Montana, two of the four beverage distributors made unsolicited remarks about their desire to get out of the recycling business altogether and made reference to their difficulties. Only four of Montana's 70 beverage distributors now maintain recycling operations.

APPENDIX 3 -- THE FIRST NINE MONTHS OF MICHIGAN'S DEPOSIT LAW

Michigan's container deposit law took effect on December 3, 1978, and is thus still in its transitional phase. While the new law has been credited with causing a sharp drop in Michigan beverage container litter and a 7% decline in solid waste volumes, it has also been blamed for a 5-20% increase in the price of Michigan beverages.

The testimony of deposit opponent Edward Deeb, executive director of the Associated Food Distributors of Michigan, to a Michigan legislative committee on May 11, 1979, has been widely distributed by opponents of deposit legislation.[1] Deeb argues that Michigan's deposit law, which switched that state's beverage container market from 85% non-returnable to 100% returnable, has caused a rise of 50% in the price of beer and 30% in the price of soft drinks since 1976.

Deeb's own figures don't support such a drastic rise, and couldn't since the general inflation in the beverage industry has been about 35% since 1976. In fact, the source of the price rise is difficult to determine from Deeb's testimony. He cites a total of $180 million in capitol (changeover) costs for the entire beverage bottling, distributing, and retailing industries. It's difficult to tell if this figure includes the multi-million dollar advertising war which took place prior to and during the deposit law's implementation.[2] Even so, if amortized over six years as is common in the industry, such capital costs would amount to less than 1¢/container, or 18¢/case. Clearly, capital costs are not much of a factor in the kind of price rise Deeb believes has occurred.

Deeb further quotes a "major Detroit area supermarket" as projecting "$50,000 per store" in added handling costs, or an average of 4.6¢/container. He multiplies this by 4 billion containers and concludes the law will cost Michigan consumers "between $1/4 and $1/3 of a billion dollars annually just to handle returnable beverage containers, at an average cost of around $1 per case."[1]

It's this aspect of Deeb's testimony that's the most puzzling. *Progressive Grocer* magazine surveyed 167 grocery stores in Oregon and Vermont in mid-1977 and found the following average handling cost for *all* store personnel for returnables:

Super markets	$13,416/year	(1,100,000 containers)	1.2¢/container
Small groceries	8,788/year	(500,000 containers)	1.8¢/container

These handling costs, reported from retailer *experience* in deposit states, are about three times less than those *projected* by one Michigan supermarket. Further, these costs are based on summer-month volumes which (according to the Brewers Almanac) are 47% higher than winter volumes in Oregon and 35% higher in Vermont. Allowing for the decrease in winter-time handling costs and adding 20% which the *Progressive Grocer* believes reasonable for fringe benefits, the actual container handling cost is closer to 1¢ to 1.5¢ per container. These figures tally well with the Oregon Bottle Survey (1971) which showed the average time for handling returned containers -- for all store personnel and functions -- was 0.00283 person-hours -- about 1¢/container at an average wage of $3.50/hour.[3]

Finally, retail beverage prices in Oregon and Vermont confirm no price rise relative to neighboring states has taken place, indicating no exhorbitant handling costs have occurred as a result of their all-returnable systems.

How, then, can handling costs be three to four times higher in Michigan for the same function? The wage Deeb cites for container handling labor, $3.50/hour, is right in line with the Oregon and Vermont wages reported to Progressive Grocer of $3.38/hour (small stores) to $3.74/hour (large store). Since labor is by far the largest cost in handling returnables, the vast costs projected in Michigan are probably due to factors other than the deposit law, among them:

(1) The failure of groceries to prepare for the law. "Despite having nearly two years to prepare for the changeover," the Grand Rapids Press editorialized, "some retailers appear to have done little or nothing to expediate the deposit system."[4]

(2) Lack of experience with the law, which was five months old at the time of Deeb's testimony. Projections made during the changeover period are often on the high side.

(3) Lack of retailer effort to control costs. A private Michigan container handling firm, called Michigan Amerrican Ltd., contracts with groceries to collect containers and return them to distributors. "Our handling costs are about 25¢ per case, and about 1¢ per container," a company representative said,[5] again, for the same functions a grocery performs.

(4) Michigan's anti-competitive beer marketing laws. Michigan's beer industry operates under a set of prohibition-era laws described by the Federal Trade Commission as "a legal way to set prices (and) eliminate competition." One law prohibits advertising beer prices, discouraging sales and competitive pricing. A second law requires posting of beer prices with the state Liquor Control Commission, where the prices are frozen for 180 days. However, the prices are open to public inspection, so the overt price-fixing isn't necessary -- a simple inspection of public beer price records is all competing distributors need to do. A third law prohibits volume discounts on beer sales (Montana has a similar law). A fourth law makes beer distributor franchises exclusive, preventing intra-franchise competition which would lower prices.

A legislative committee investigating Michigan beer prices recommended repeal of these laws to stimulate greater competition. Even though tacitly admitting repeal would produce lower beer prices, the Michigan beer industry opposed repeal, indicating prices are a concern of the industry only when they can be used as ammunition against deposit laws.[6]

(5) Profiteering. In an anti-competitive climate, profiteering can take place without direct trust actions. The chairman of the Michigan Liquor Control Commission accused beer sellers of "profiteering" from the new deposit law, while the state's Assistant Attorney General, Edwin M. Bladen, stated flatly that prices have risen beyond inflation and the costs of complying with the deposit law.[7] The Attorney General's office has opened a grand-jury investigation into beer price-fixing, while the legislature has appointed a special committee to report on beer prices.

Two Michigan beer wholesalers, Falstaff and Pulaski Piwo, have publicly stated that the deposit law "is not the reason for the excessive prices."[8]

The industry has every incentive to charge high prices in order to make the law look bad and to recoup investments in advance of an industry-supported repeal effort. Larry Raemakers, president of a Saginaw soft drink bottling company, stated, "There are some in the industry who cling to the hope the law will be overturned. They don't want to make a major commitment to the system, because then it might work." "When the industry screams that bottle bills lead to higher prices, it's a self-fulfilling prophecy," an industry spokesperson told Newhouse News. "Unless your consumption goes all to hell, why lower the price?"[9]

(6) The tendency of capital and operating costs of a deposit law to show up immediately after implementation, while revenues from the law are delayed a year or more. Michigan's deposit law, which places a 10¢ deposit on around 80% of the state's containers and a 5¢ deposit on "certified" standard bottles, will annually yield an estimated $30 to $40 million in unclaimed deposits, or an average of 20¢/case. The second revenue, on bottles only, is a decrease in bottling costs of roughly 50¢/case for beer and $1/case for soft drinks due to the widespread use of refillable bottles. Michigan's beverage industry has had to purchase an enormous number of new refillable bottles whose costs inevitably show up initially in beverage prices; as these bottles are returned and refilled a number of times, these costs will decline. Finally, revenues of around 25¢/case will result from aluminum can recycling.

A second source of revenue goes to state taxpayers. The Michigan Department of Natural Resources estimates a savings of $40 million per year in solid waste management costs, or 25¢/case of beverages sold.[10] Savings in litter cleanup are not yet available, but there is no question Michigan litter has sharply decreased.[11]

Deeb also declares that "as a direct result of the Law" beer sales declined by 81,805 barrels in March, and with them state beer tax revenues.[1] Again, the universe is said to revolve around deposit laws. Deeb does not mention that in the first three full months of the deposit law, beer sales were up [illegible] 28% in January 1979, for example); apparently he [illegible] consumers didn't notice the deposit until March. Nor does Deeb mention that a new state law raised the drinking age in Michigan from 18 to 21, in 1979. Nor does Deeb mention that while barrel (not package) beer sales were down 3% in the first half of 1979, this is hardly unprecedented; the Brewers' Almanac shows package beer sales in Michigan in 1977 were down in nine of the twelve months, including a 17.4% decline in January and declines of 9.3% and 9.5% in July and August, despite the absence of any deposit system to blame them on.

Deeb argues that a state litter survey showed beverage containers comprise only 12.2% of litter and that a Washington-type litter tax would take care of the whole litter problem for only $10 to $15 million per year. The study, by Daniel Syrek, a frequent beverage industry consultant, is at sharp variance with litter studies elsewhere. The primary reason is the bewildering variety of adjustments Syrek makes to litter data, though he does finally conclude that beverage container litter comprises 98.5% of "the total hazard potential" of all litter. Deeb fails to disclose that the Washington litter tax has failed to solve any problems, least of all litter, even using data from the litter tax's administrative agency.

Even accepting Deeb's figures as generally accurate, the deposit law should result in generally lower beverage prices once experience has been gained, as well as significant savings to Michigan taxpayers.

FOOTNOTES:

1. Deeb, testimony of Associated Food Dealers of Michigan, to Michigan House of Representatives Committee, May 11, 1979.

2. Nancy Dunn, "Bottlers Work Hard Against Returnables," Detroit News, July 22, 1979, pp. D-12, D-13.

3. "The Impact of Forced Deposits," Progressive Grocer, October 1977.
   "The Economic Impact of Oregon's 'Bottle Bill'", Charles M. Gudger and Jack C. Bailes, Oregon State University Department of Economics, 1974.

4. "Bottle Law Works," Grand Rapids Press. December 20, 1978, p. 18-A.

5. "Cashing In On Bottle Bill," Detroit News, August 8, 1979.

6. "The Free Market and Beer," Detroit News, August 23, 1979.

7. "Beer Price-Fixing Being Investigated", Detroit News, July 24, 1979.

8. "Michigan's Bottle Law, Fact vs. Fiction." Michigan Out-of-Doors, March 1979, pp. 22-23.
   Letter, Frank Eberhard, President, Pulaski Piwo, to Rick Jameson of the Michigan United Conservation Clubs, May 21, 1979.

9. Reference 2.

10. Reference 2.

League of Women Voters of Montana* Position Paper

TESTIMONY PRESENTED TO THE INTERIM COMMITTEE REVIEWING MANDATORY BEVERAGE CONTAINER DEPOSIT LEGISLATION--October 6, 1979

The Montana League of Women Voters supports legislation for mandatory deposits on beverage containers as a means to support recycling.

The people of Montana have expressed a desire for deposit legislation. A 1977 poll by an MSU political science professor showed that 74% of Montanans favor such legislation. A 1979 poll by the Republican Party found 75% of the people in our state favor deposits on beverage containers.

With regard to costs, William R. Bree, Recycling Information Officer, Department of Environmental Quality, Portland, Oregon in an October 11, 1978 letter, stated:

> There are no direct or recorded administrative costs to the State of Oregon from the Bottle Bill. All costs were so small they were absorbed into existing programs. While the Oregon law has a provision for redemption centers none have been established in the last six years. Apparently there is a reluctance on the part of the retailer to have the customer go to some other point to obtain the refund money. The assumption is that most refund money is now spent in the retail store.

Recycling bottles and cans is an energy saving practice which is certainly needed now with all types of energy becoming higher priced and most energy sources becoming more scarce every day.

The Federal Energy Administration found that returning to returnable bottles and cans would save the energy equivalent of 29 million barrels of oil every year in the United States.

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*Copy retyped since original was too light.

The U. S. Environmental Protection Agency has discovered that returnables are 30% cheaper than throwaways. Another study showed that consumers in the United States would save $1.8 billion per year if all beverage containers had deposits.

Aluminum, iron, and glass are wasted when thrown out along a highway or put in a landfill dump. Water is even wasted by making new containers instead of recycling the used ones. From mining through distribution, refillable bottles and aluminum cans use less than 1/2 of the water needed by one-way bottles and bimetal cans. By reusing the aluminum, the bauxite savings represents 2.4 to 3.5% of the U. S. aluminum industry's demand for 1985. Recycling of non-aluminum is important too. Conservation of our iron ore resources is more important than many people believe. We are already importing one-third of our iron requirements, while our domestic reserves are yielding progressively lower quality ore.

Litter taxes are a prime example of trying to cure the illness after the death rather than at the first sign of the sniffles. Litter should be eliminated at the source. Litter taxes do not achieve the three most important goals that deposit legislation would solve. These three are: less littering, less solid waste production, and finally less energy use in making the containers.

Also, a litter tax is unfair, even though it is put on the business end of the product. The cost certainly is passed on to the consumer and in this manner makes no distinction between those that litter and those that don't.

Testimony for Study Committee
Prepared by Mike Lofft
502 Madison, Helena, MT 5960

Buttrey's
Beverage prices on Saturday, October 6, 1979
for Coca-Cola

① 1 six-pack of 12 oz bi-metallic cans $1.89
6 cans, 12 oz. each = total 72 ounces
cost per ounce = 2.62¢ ($0.0262) per oz.

② 1 eight-carrier of 16 oz. returnable bottles $1.19
8 bottles, 16 oz each = total 128 ounces
cost per ounce = 0.93¢ ($0.0093) per oz.

③ 1 quart returnable bottle $ .45
1 bottle, total 32 ounces
cost per ounce = 1.40¢ ($0.0140) per oz.

APPENDIX C*

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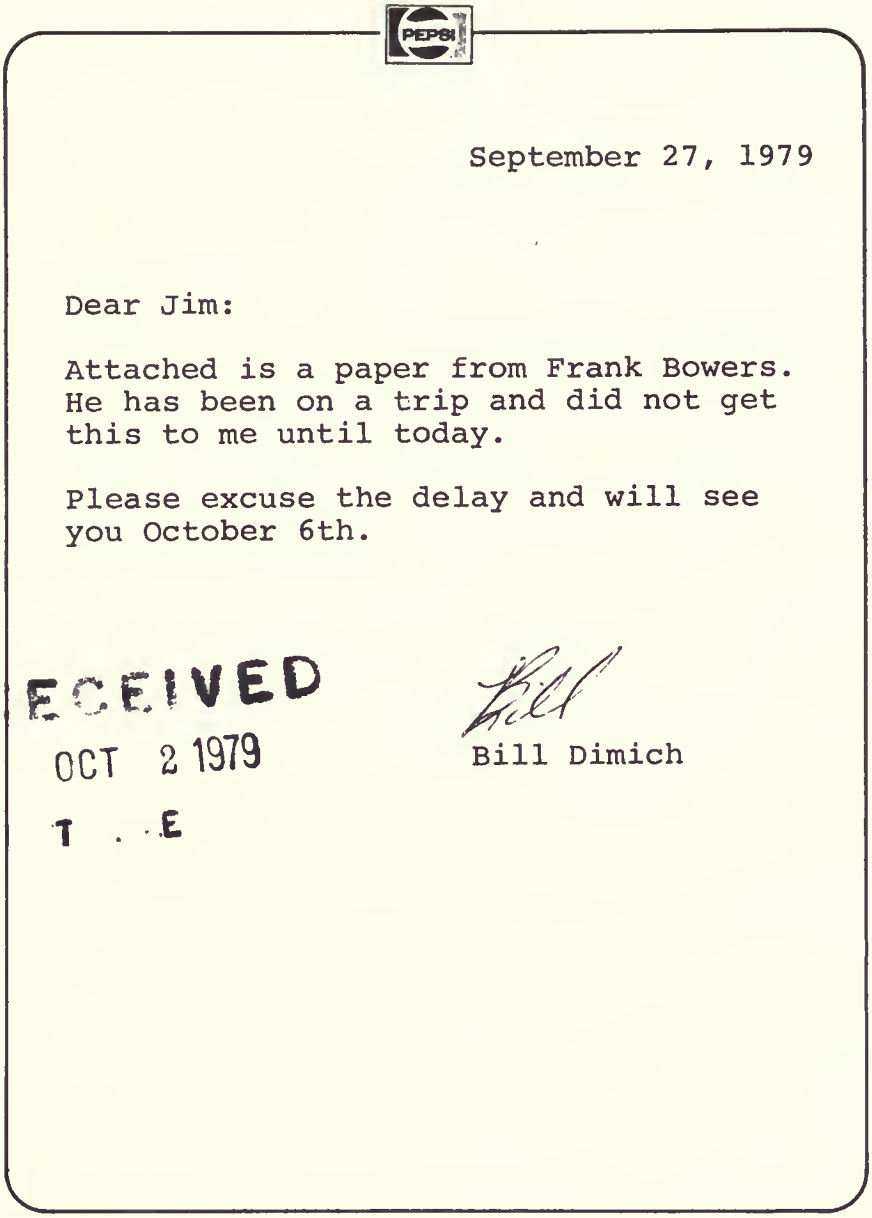
*Appendix C contains Position Papers submitted by deposit legislation opponents. The material is organized alphabetically by the person or organization represented.



September 27, 1979

Dear Jim:

Attached is a paper from Frank Bowers. He has been on a trip and did not get this to me until today.

Please excuse the delay and will see you October 6th.

ECEIVED
OCT 2 1979
T . E

Bill

Bill Dimich

Montana bottlers, grocers, and distributors have found themselves in the midst of a social dispute centered in the containers used for their products. At the insistance of a small, but highly vocal group of people, a flood of propositions to tax, ban, and regulate these containers has appeared at almost every jurisdictional level. Ironically, this comparatively low priority issue; low priority in terms of energy consumed and litter created, has generated more controversy, more publicity and more bitterness than any other related energy or environmental problem. For many reasons Montana's bottlers oppose restrictive actions that affect their packaging.

To be specific, we feel deposit legislation will:

1. Increase costs to both consumer and bottler.
2. Increase the amount of energy required to deliver product to the market place.
3. Disrupt the grocers method of doing his day to day business.
4. Damage the recycling efforts already functioning in Montana.
5. Will not succeed in reducing large amounts of litter.

Addressing each point in detail, we find the following:

The extensive capital investment required on the part of the beverage industry; adoption of more labor intensive packaging practices, probable loss of beverage sales volume (at least initially) and elimination of some competitive aspects of the market would all contribute to higher consumer prices for beverages. (1) Vermont, a recent example, indicated higher beverage costs (5.5 million first year) and loss in $570,000.00 in state tax revenue. (2) Other examples would be given but would prove repetitious. It appears safe to conclude bottlers will endure additional costs that must be passed on to the consumer. Perhaps the most urgent issue touched in this discussion, is that of energy consumption. The total beverage industry consumes 1/5 of 1% of the total industrial energy requirement and it is difficult to embrace any thoughts of increasing that already low requirement. Bottles that must be washed (gas fired washer) truck with ½ pay loads (bottles take up 2 times as much space and weigh twice as much as cans) contribute to twice the energy requirement. In fact, the Coca-Cola Company's study of fuel requirements indicated it took 94.9 gallons/case Oregon vs. 47.4 gallons/case Washington. (3) For additional information, also see the enclosed clip from a Commerce Department study.

In the store, the final delivery point to the consumer, the influence would be very easy to see. Additional space and time would to sorting and storing. Less obvious, would be the problems of sanitat collection. The net result would be greater problems and costs for these ed. Recycling as we now know it in Montana, returns about 43% of the aluminum containers to the manufacturer. Recently, initiated steel recycling has already achieved a .095% return. There is little doubt this effort would be severely damaged by restrictive legislation. If you take the time to tie the industries research and develpoment efforts and the resulting energy savings (see Commerce Dept. attachment) to the recycling tonnage numbers one sees a net energy savings with the current system left intact. As the beverage industry has funded and assisted the recycling industry in Montana, we would be most distressed to see a legislative disruption that might inhibit their continued growth and development.

As a last point, litter would be reduced to some degree but the cost would be excessive. The Oregon story indicated that while beverage related litter decreased, other litter increased by 12%. The net result was a 10.6% decrease in total litter. (4) The costs, profit losses, and increased consumer prices are not acceptable when the total litter picture remains basically unchanged.

As the final decision will be made by the people of Montana, any further imposition on your time would be foolhardy. It suffices to say we are dealing with an emotional issue that lacks factual substance. There are numbers and statements from authorities on every side of the issue that distend and distort the truth until it is lost, perhaps forever. We would only hope that the system now in place is, on the whole, price and energy effective and that the ideals of recycling we embrace will speak for themselves whenever necessary.

1. "The Impacts of National Beverage Container Legislation". Staff study A-01-75, U. S. Dept. of Commerce.
2. "Restrictive Container Legislation", American Iron and Steel Institute.
3. "Beverage World Scope" Sept. 1979
4. "Study of the Effectiveness and Impact of the Oregon Minimum Deposit Law" Applied Decision Systems, Oct. 1974

V. Industry Costs

A. Summary

It is difficult to accurately predict the capital costs of converting to an all refillable glass system. An example of the cost considerations is found in the filling operations at a modern brewery. Assume that bottling and canning lines are operated side by side in the same building and that each operation occupies half the space. Since can filling is twice as fast as bottle filling, one-third of the throughput is bottled and two-thirds is canned. To bottle all of the throughput would require two new bottle lines and half again the space would be required. Hence, not only must two new bottle lines be installed but the building must also be expanded. In other cases, where equipment is older, a single modern bottle line may replace all of the filling operations. Certain equipment may also be scheduled to operate for more hours relative to others, thereby reducing or delaying the requirement for new equipment.

The capital investment and related cost estimated presented in this section are based on 1) limited information concerning expenditures by the beverage industry in Oregon as a result of legislation requiring a deposit on beverage containers and 2) information provided in a statement of the National Automatic Merchandising Association in opposition to HR 406.[17]

Estimates of necessary capital expenditures which would be required for new equipment, plant and facilities, but excluding the cost of refillable containers and new packaging are as follows:

Industry	Amount (in millions)
Soft Drink Bottlers	$270 - $380
Regional Brewers	200 - 310
National Brewers	1,500 - 2,300
Vending Machines	15 - 20

These expenditures would be spread over a three to four year period. The most important aspect of these expenditures is that they will not contribute to increased production or lower beverage costs.

Expenditures for new containers to support the all glass system and new packaging are likely to require an additional one-time capital outlay in excess of one billion dollars for this industry. Together with the capital costs, the total is equivalent to the net profit of the beverage industry over a comparable period (four years) and will substantially increase industry debt to the extent that some plants may find it impractical to finance conversion.

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[17] HR 406 is the House Counterpart to S. 613.

B. Capital Requirements in Soft Drink Production

In the Oregon soft drink industry where 12% of drinks are still sold in cans, the capital cost was between $1.5 and $2.0 million.[18] Extrapolating this to 100% refillable bottles in Oregon and further extrapolating for national costs yields an estimate of $270 to $380 million for soft drink conversion.[19]

C. Expenditures by Regional Breweries

Regional brewers in Oregon are estimated to have sustained 98% of all costs associated with beverage substitution in malt beverages.[20] This packaging mix changed from 42.6% cans, 22.6% no-return bottles and 34.8% refillables to 3.6% cans and 96.4% refillable bottles. The former distribution of packaging is fairly consistent with the national average. Capital investment was estimated to be between $2.2 and $3.7 million, neglecting bottle purchases. Of this $1.5-$2.0 million was associated with the installation of one bottling line and washing equipment.

Regional and local brewers comprise about 40% of the malt beverage market and regional and local brewers in Oregon account for 2.4% of total national shares. Using these figures and extrapolating nationally, $100-$155 million needed to convert regional and local brewers to an all glass refillable system. However, this estimate is misleading in that regional brewers in Oregon also market to other states;

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[18] Reference 9.

[19] This estimate is substantially lower than the industry estimate for conversion. In a letter from Thomas F. Baker, Executive Vice President of the National Soft Drink Association, the following estimates are presented: "The industry's estimate of capital requirements to accommodate compliance with S. 613 will be somewhere between $1.3 and $1.7 billion expressed in 1975 dollars." "Categories included in this estimate are: returnable bottles and cases, delivery vehicles, production equipment, vending machines, materials handling vehicles and additional warehousing space." In excess of $700 million of this NSFA estimate is associated with returnable bottles and cases. The latter costs are not represented in the Commerce estimates but independent Commerce values for one-time bottle and packaging expenses are between $590 and $660 million in 1974.

[20] Reference 9.

adjustments were made by retailing filled refillable bottles for Oregon consumption and marketing more non-returnable in other states. Accordingly, $200-$300 million may be a better estimate for capital expenditures of regional and local brewers nationally, to support an all glass refillable system.

D. Capital Requirements of National Brewers

National brewers supply about 60% of the market share. Industry estimates for full conversion to an all glass refillable system, neglecting container and packaging purchases, range from $1.5 to $2.3 billion.

E. Losses in Automatic Merchandising

In 1974 annual sales of carbonated beverages in bottles and cans through vending machines totaled about 9 billion fills of which 47% were in cans.

The major effect on beverage dispensing from these sources is likely to be a reduction in sales of soft drinks dispensed in bottle or cans. A requirement to collect container deposits at unattended locations causes problems. Either the deposits must be forfeited, returned elsewhere, such as at retail outlets or new machines must be developed to collect bottles and dispense deposits. Since total annual deposits from vending machines would amount to $450 million annually, resolution of the problem is important.

Aside from this problem, with total substitution of refillable bottles about one-half million machines now dispensing cans would have to be modified or replaced with suitable bottle or cup dispensing equipment. It is estimated by the industry that the initial investment for can dispensing vending equipment is about $420 million. About one-quarter to one-third of these machines will be retired before the full impact of refillable containers is felt and a share of the remaining equipment can be modified to dispense suitable glass containers. Given that problem of collecting deposits can be solved. Capital costs are conservatively estimated at $15 to $20 million.

II. Energy Conservation

A. Energy Consumption in Current System

Current energy consumption by the beverage industry in packaging and delivering soft drinks and malt beverages is estimated at 79 million barrels of oil equivalent (MBOE) or 461 trillion British Thermal Units (BTU) annually.[2]

B. Means of Reducing Energy Consumption

Most of the 79 MBOE of energy is consumed in container (cans and bottles) manufacture. Energy savings is in this phase of the industry can be obtained by the following means.

- Reuse of containers
- Recycling used containers
- Making the process of manufacture more energy efficient
- Making lighter containers.

Reuse of containers is an obvious direct approach. In current container technology, it applies only to the glass container since metal and plastic containers are not currently refillable.

Since refillable glass containers are heavy, they consume more energy in manufacture and transport than other container types. In addition, to be reused, they must be collected, sorted, and washed. These operations all consume energy. Consequently, high return rates must be achieved to realize significant energy savings compared with a system using all container types and employing advanced recycling, process efficiency and improved design methods.

An all refillable glass system, assuming an optimistic 90% return rate, or 10 trips per bottle, would consume 31 MBOE annually.[3] This drop in energy consumption would not occur until an inventory of 22 billion refillable bottles had been built over several years. In addition, after full conversion, 9 billion bottles are needed, annually, to maintain the supply. Assuming a three year conversion period, there would be an actual increase in energy consumption during the first year and a breakeven point after the second year (see Figure 1). At a less optimistic return rate such as 80%, about 10% more bottles are needed for inventory and about 18 billion bottles must be manufactured annually to maintain supply. The all refillable system would consume 48 MBOE annually after an inventory of containers is established.[4] Energy consumption exceeds 95 MBOE during the first year and net savings in energy are not achieved for more than three years.

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[2] References 2 and 3.

[3] Ibid.

At return rates less than 80%, there would be an initial increase in energy consumption to over 95 MBOE which would never be recovered because at return rates less than 70%, the energy required is equal to or greater than that of the current system.

Recycling is most attractive, at the present time, in the cases of aluminum containers. Current industry estimates are that 17% of aluminum cans were recycled in 1974 and that 30% is a conservative estimate of the rate in 1980.[5] The attractiveness of recycling aluminum stems from the fact that aluminum scrap is valuable and that only 5% as much energy is needed to produce aluminum when scrap is used as when primary aluminum is produced from bauxite.

Plastic containers for beverages are currently being test marketed. Most plastics used for containers can be recycled and all can be burned to recover their heat value. Other characteristics that may emerge from test marketing can make plastic containers an attractive alternative for many consumers. An all refillable glass system would preclude the possibility of further development and the uncertainty caused by any national legislation would cause further development to be delayed or abandoned.

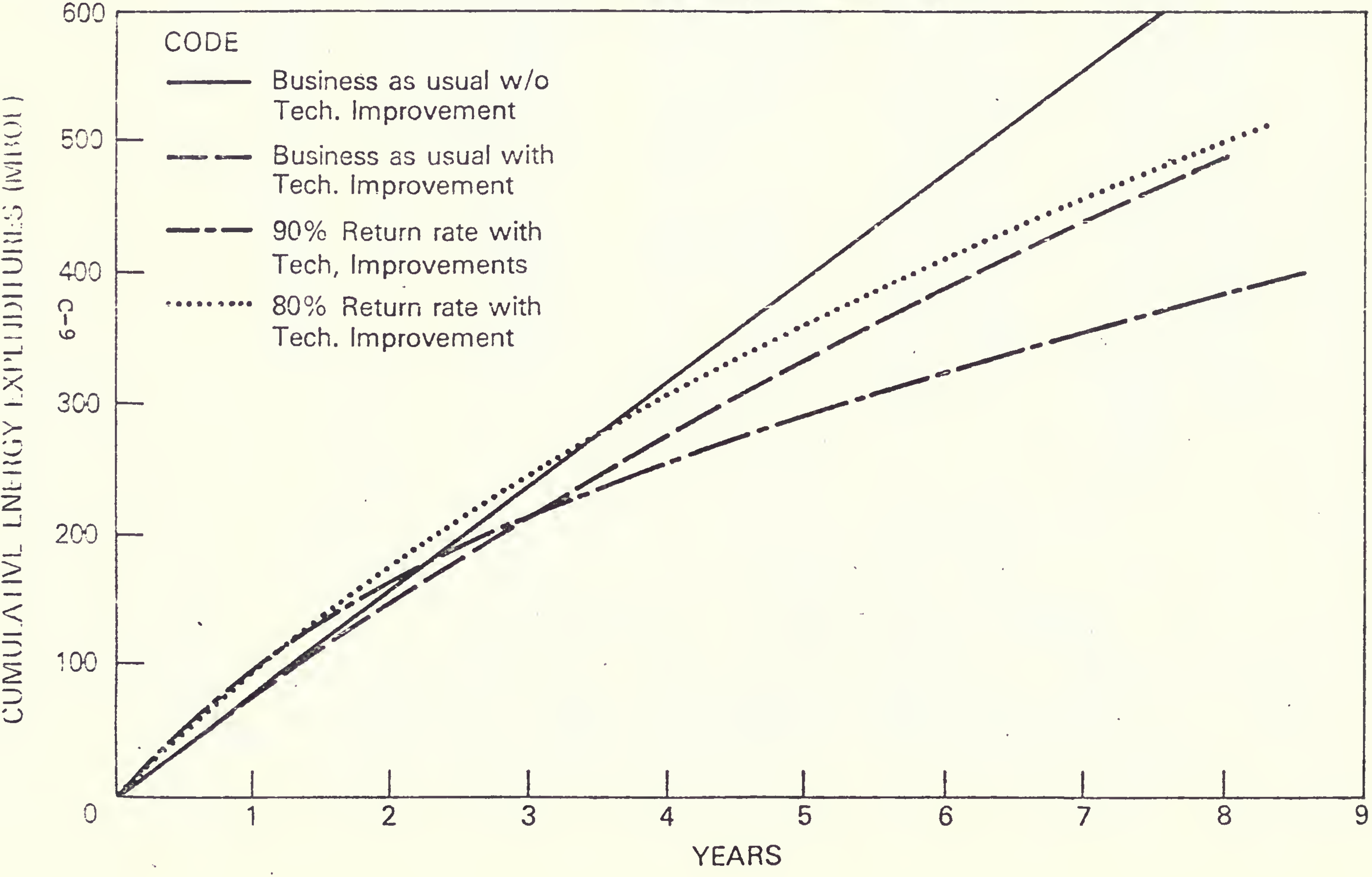
Lighter containers and process efficiency improvements are often connected. Estimates provided by the Glass Container Manufacturing Institute indicate that the energy content of glass beverage containers should decrease on the basis of process and weight savings improvements. For example, a 15% reduction in glass weight for both disposable and refillable containers appears achievable in this decade. Automatic equipment with feedback correction to reduce manufacturing reject rates together with retrofit of existing equipment to contain and recycle heat heretofore lost are increasing efficiency of glass production. Synthetic soda ash should be phased out by 1977 and replaced totally by natural material with a much lower energy content. Steel closures may also replace aluminum. The cumulative effect of these improvements should result in energy savings of the order of 12-18% in the manufacture of glass containers.

4/ References 2 & 3.

5/ Press release and related documentation by the Aluminum Association, May 29, 1975.

Figure 1

CUMULATIVE ENERGY EXPENDITURE AS A FUNCTION OF TECHNOLOGICAL CHANGE AND RETURN RATE



In addition to innovative programs for collection and recycling of cans, extensive innovation in technology is taking place in process efficiency and lightweighting in can manufacture. It is expected that additional conservation of 10% through process efficiency gains and 10%-30% in design are still achievable in the next five or six years.[6/]

The can mix for beverage packaging in 1976 is estimated at about 30% aluminum, 65% bimetal (steel and aluminum) and 5% all steel. Substitution of steel for bimetal cans, (a current trend) plus weight reduction, the use of plastic packaging and new inks and recycling could result in energy savings of 25% to 35% for these containers by 1985.[7/]

C. Effect of Legislation on Technological Improvement

The container manufacturing industry is highly competitive. The objectives of their technological innovations are reduced cost, reduced energy consumption and provision of a variety of container types and sizes to the bottling industry.

The estimates reported here are based on the assumption that energy reduction of 15% will occur in glass container manufacture and 25% to 35% in cans (including increased recycling). This assumes that technological advances will be adopted by all manufacturers. In fact, if legislation results in an all glass refillable system technological change may not occur as rapidly since the demand for glass containers will decrease and needed capital investment may not occur in a declining market.

Likewise, if legislation is not passed, these savings in energy may not be realized across all manufacturers. However, incentives in the form of higher energy costs coupled with the absence of adverse impacts of legislation on the income of container manufacturers would make these innovations possible.

If current market shares are maintained by all container types with the exception that steel replaces bimetal cans, it is estimated that annual energy consumption would be reduced from 79 MBOE to 51-55 MBOE.[8/]

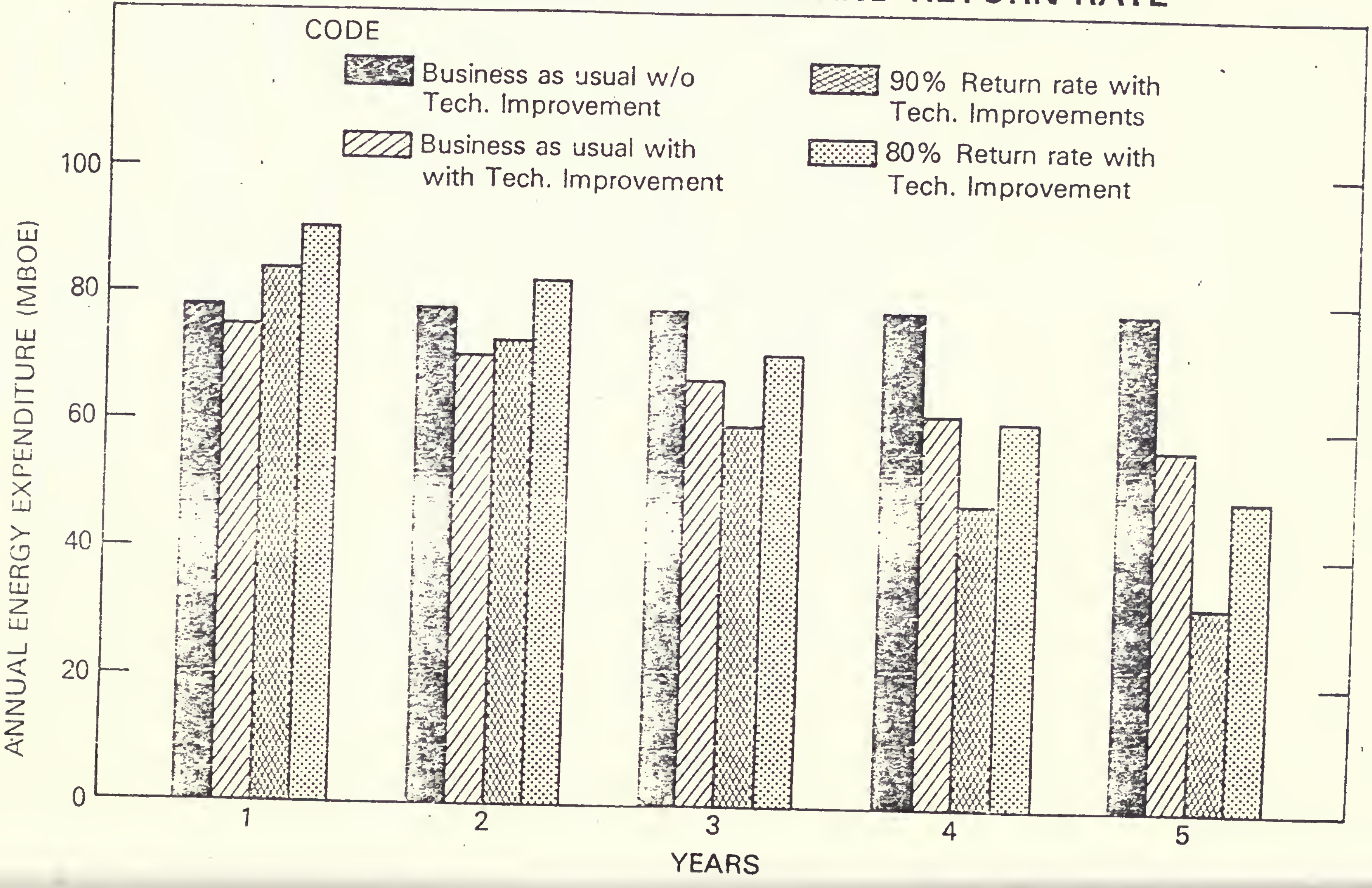
6/ References 4 & 5.

7/ References 4 & 5.

8/ References 2, 3, 4 & 5.

Figure 2

ANNUAL ENERGY EXPENDITURE AS A FUNCTION OF TECHNOLOGICAL CHANGE AND RETURN RATE



D. Results of Analysis

Figure 2 compares annual energy consumption for four alternatives:

- The current system with current market shares.
- The current system with current market shares but with advanced container manufacture technology.
- A refillable glass system with a 90% return rate.
- An all refillable system with an 80% return rate.

The last three alternatives will result in an eventual decrease in energy consumption. In the case of improved can manufacture technology, lighter cans and substitution of all steel for bimetal cans will be introduced over a time period of several years. In the case of an all refillable glass system, the combination of phasing in and building a reserve will result in an initial increase in energy consumption, followed by a gradual decrease.

Figure 1 gives the cumulative energy consumption for the first seven years after changes begin. The all-refillable, 90% return glass system does not save any energy until after two years following the beginning of the conversion. At an 80% return rate, energy savings will not be realized until at least three years after initiation. In the unlikely event that S. 613 results in an all refillable glass system, conversion would probably begin three years after enactment. This means that savings of energy compared with the improved technology alternative would not begin until six to seven years after enactment. Figures 1 and 2 assume that conversion to an all refillable glass system would begin immediately.

Buttrey
FOOD STORES

DIVISION OF JEWEL COMPANIES, INC.
601 SIXTH STREET S.W.
GREAT FALLS, MONTANA 59403

P.O. BOX 5008

AREA CODE 406
761-3401

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MONTANA LEGISLATIVE
COUNCIL

September 11, 1979

Mr. Jim Oppedahl
Legislative Council
State Capitol
Helena, Montana 59601

Re: Mandatory Deposit - And - Return Law

Dear Mr. Oppedahl:

Please find enclosed herewith a Position Paper which we prepared on the subject of a Mandatory Deposit - And - Return Law.

We hope the information provided will be of some assistance. Please feel free to call on us if you think we can provide you with any additional information.

Thank you for your cooperation.

Very truly yours,

BUTTREY FOOD STORES

John F. Lynch

John F. Lynch
Staff Attorney

JFL/tv

Encl.

POSITION PAPER
BUTTREY FOOD STORES
MANDATORY DEPOSIT - AND - REFUND SYSTEM

Buttrey Food Stores operates a chain of fifty supermarkets in the states of Montana, Idaho, Washington, Oregon, Wyoming, North Dakota and Minnesota. Since 1972, Buttrey has had an experience with the Mandatory Deposit - And - Refund System in the state of Oregon. That system applies to all beer and soft drink containers sold in that state. The purpose of this paper is to show the impact of Mandatory Deposit Legislation on a supermarket.

There are two types of containers recognized under the Oregon law. First, certified containers are those which are reusable as beverage containers by more than one manufacturer. These containers have a deposit - and - refund value of not less than two cents each. Noncertified are all others. These containers carry a deposit - and refund value of not less than five cents each.

The impact of a deposit law on smaller retailers raises certain problems which are unique to small retailers and should be pointed out here. Problems such as space for storage and drain on capital when the return rate exceeds one hundred percent of sales. These kinds of problems place a severe burden on a Ma and Pa Store or a convenience store.

Probably the hardest hit by the deposit law is the supermarket. This is because of the volume of business that is done in beer and soft drinks. Consumers load empties into shopping carts out in the parking lot and wheel them into the store and wait for them to be processed. The bottles are then wheeled into the rear of the store to the bottle room where employees sort and stack them. The number of hours required to sort empties averages forty hours per week. Although it has been Buttrey's experience that the State Sanitation authorities do scrutinize the handling and storage of empties, some store owners state that State Health authorities "look the other way" when it comes to empty beverage containers.

Although store owners have the right to reject unsanitary containers, many store owners don't want to offend the customer and lose his business. Possibly the customer might be warned that unsanitary bottles will be rejected the next time, but seldom does this happen.

The redemption of cans presents a further sanitation problem since they are often times brought in the store in plastic bags. These bags must be emptied and because of the residue of the contents of the cans being spread throughout the inside of the plastic bag, there exists a sanitation problem for any employee who must count the cans.

While many of the costs of a Mandatory Deposit - And - Refund System have been absorbed by the retailers and wholesalers, it's just a matter of time before those costs will ultimately have to be paid by the consumers. This, of course, is in addition to the financial burden of paying five cents deposit on every beer and soft drink container purchased.

It is our position that the burden placed on Food Retailers by such a law is not offset by any benefit to society in reduction of litter. A study commision by the Oregon Legislature showed that the Oregon Deposit Law was successful in reducing the litter problem by just ten percent (10%). This was compared with Washington's Comprehensive Litter Control Law which reduced overall litter by sixty percent (60%).

PEPSI

MIKE D. DIMICH SONS
Pepsi-Cola Bottling Co. of Billings

344 Howard Avenue / Billings, Montana 59102 / 406 252-9355

September 7, 1979

SEP 1 0

Mr. Jim Oppedahl
Helena Legislative Council
Helena, Montana 59601

Dear Jim:

Enclosed you will find the fact information as related to the soft drink industry in the State of Montana.

It is difficult to evaluate the cost each bottler has in buildings, equipment, trucks and sales force of display racks, visual coolers and vendors which is all necessary to sell soft drinks.

Cans are a part of all bottlers business and we all work together towards a voluntary recycling program. This voluntary system is working without any legislative control and has been a success in the few short years that it has been in action. Our biggest help has been Montana Recycling and other groups in the state helping to set up a recycling program. In the short time we can show that a good effort has paid many dollars back to the citizens of Montana for their recycling efforts.

Sincerely,

William M. Dimich

WMD:jw
Enclosures

SOFT DRINK INDUSTRY PROFILE
MONTANA
1978

Sales of soft drinks produced by Montana bottlers totaled an estimated $61.0 million in 1978. The bottlers employed 415 persons with a payroll of $4.4 million. There were 18 plants located in the state in 1978; most were small with less than 50 employees. The bottlers purchased goods and services from other firms totaling $36.6 million. Bottlers paid state and local taxes estimated at $1.0 million.

Montana Soft Drink Manufacturers

Number of plants	18	Number of cities with plants	12
Domestic owned plants	17	Payroll (Mil $)	4.4
Number of firms	18	Number of employees	415
Domestic owned firms	17	Sales - wholesale (Mil $)	61.0
Single-plant firms	17		
Multi-plant firms	1	Cost of materials (Mil $)	36.6
Plants by no. of employees		Value added (Mil $)	24.4
1-49	17		
50-99.	1	Taxes, State & Local (Mil $)	1.0
over 100	0		

LOCATION & NAME	NO. of EMPLOYEES
ANACONDA, MONTANA	
Sugrue Bottling Company	7
BILLINGS, MONTANA	
Wy-Mont Beverage, Inc.	95
Pepsi-Cola Bottling Co.	34
BOZEMAN, MONTANA	
Lehrkind's Coca-Cola Btlg. Co.	40
BUTTE, MONTANA	
Harkins Wholesale	10
Coca-Cola 7-Up Btlg. Co.	20
Pepsi-Cola Bottling Co.	35
GLASGOW, MONTANA	
Coca-Cola 7-Up Btlg. Co.	8
GLENDIVE, MONTANA	
Coca-Cola Bottling Co.	10
GREAT FALLS, MONTANA	
G. F. Coca-Cola Btlg. Co.	41
Pepsi-Cola Bottling Co.	20
HAVRE, MONTANA	
Coca-Cola 7-Up Company	15
KALISPELL, MONTANA	
Flathead Coca-Cola Btlg. Co.	15
LEWISTOWN, MONTANA	
Lewistown Coca-Cola Btlg.	8
MISSOULA, MONTANA	
Coca-Cola Bottling Co.	40
Pepsi-Cola Bottling Co.	40
SHELBY, MONTANA	
7-Up Pepsi-Cola Btlg. Co.	5
SIDNEY, MONTANA	
Blue Rock Products Co.	42
LEWISTOWN-ROUNDUP, MT.	
Pepsi-Cola Bottling Co.	5

HJR 56) POSITION PAPER OF THE
Interim Study) MONTANA BEER AND WINE
) WHOLESALERS' ASSOCIATION

Beer distributors join with many other Montanans in wanting cleaner roadsides, greater conservation of energy, and beer that the average working person can afford. The best way to progress toward all three of these goals at the same time is to strengthen the voluntary recycling centers which have begun operating in Montana in the 1970's.

When the price is right at a recycling center, there is less beer can litter in the first place and many of the cans which are still littered are picked up by collectors. Recycling saves considerable energy when the container is an aluminum can--the consumer's favorite beer package in Montana. Recycling does not save much if any energy with beer bottles or steel cans. Our remote location puts us far from the steel mills or glass plants and the transportation back eats up any energy savings.

The emergence of competition between recyclers in Montana's larger cities and entries of some recyclers into smaller communities signal the promise of this new industry. There may be some incentives the legislature could offer recyclers, or some barriers the legislature could remove. But the major threat to the growth of voluntary recycling is the possibility of a forced deposit law. This would transfer the container recycling business to involuntary recyclers--distributors, groceries and taverns--who don't want it. By requiring these wholesale and retail beer dealers to run all empties backwards through their cycles, a forced deposit law would add around $5 million a year in Montana to the consumer price of beer. That such a law should be proposed when voluntary recycling is making such progress recalls Hoffer's observation: "A grievance is most poignant when almost redressed."[1] For it seems likely, if voluntary recycling continues its present growth rate in Montana, that in four or five more years the problems decried by the pro-deposit groups will have become very small indeed.

Since voluntary recycling adds nothing to the cost of beer, Montana distributors can best contribute their views of the costs of a forced-deposit system and the difference in social benefits between forced-deposit and voluntary recycling. Direct domestic energy consumption is a good place to start. An average beer distributor in this state uses 100 gallons of fuel to deliver 1,000 cases of packaged beer. The increase in distributor fuel consumption in states adopting the forced deposit ranges from 30% to 100% more fuel. A 47% increase would work out to an additional half-million gallons a year pumped by beer distributors. Further assuming the soft drink

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[1] The True Believer, sec. 22

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distributors' fuel requirements go up 400,000 gallons under a deposit law, we would spend 900,000 gallons of our fuel allotments to save energy on aluminum refining in other states as Table I indicates:

TABLE I
Energy needed to refine new aluminum under
less than maximum return rates

Maximum return would be 90% of 250 million cans, or 225 million cans.

At a 40% return rate, 100 million cans are recycled and the energy to fabricate 125 million additional cans equals 1,119,300 gallons of gasoline.

At a 50% return rate, 125 million cans are recycled and the energy to fabricate 100 million additional cans equals 900,900 gallons of gasoline.

At a 60% return rate, 150 million cans are recycled and the energy to fabricate 75 million additional cans equals 682,500 gallons of gasoline.

It appears that there is no energy savings in moving from a 50% return rate with voluntary recycling to a 90% return rate with deposits. You spend 900,000 gallons of fuel in Montana in order to save the equivalent of 900,000 gallons at aluminum plants in some other state. Montana's return rate for aluminum cans is nearing 50%. A voluntary return rate of 60%, which is achievable without great difficulty, would save enough energy that by switching to deposits, you'd spend 900,000 gallons to save the equivalent of 682,000 gallons. Robbing Peter to pay Paul never makes much sense, and especially not when Paul lives in another state and gets paid not in OPEC petroleum but in hydropower or coal energy.

Increased fuel consumption is only one part of the higher beer prices under forced deposit. Higher labor costs is a larger factor. It takes 2.9 man-years of work to deliver 100,000 cases of beer today; collecting all the empties would add another 0.9 man years. The proponents of deposit laws have always admitted, even boasted at times, that their system increases the number of jobs required to handle beer, and have never claimed that these laws sold more beer. Increase labor without increasing productivity, and you have to raise prices. That is such basic economics that wholesalers are constantly astonished to hear deposit boosters saying they won't raise prices. Increased wholesaling labor alone would amount to $1.5 million annually. The retailers' and soft drink distributors' labor costs would jump about as much.

Solid waste disposal savings furnish no significant justification for adopting a deposit law. The 12,000 tons of beverage containers which could be diverted from landfills to recycling centers with a deposit law would represent a savings of $90,000 a year for all the landfills in the state.

Deposit laws have not significantly lowered the cost of picking up litter along the highways. This is because beverage containers are such a small percentage of litter counted piece by piece. By the piece is how the cost of collecting litter is calculated, which explains why litter pickup expenditures fell less than 10% in Oregon and Vermont after those states adopted deposit laws. The experience of the Montana Department of Highways indicates that penny-a-can recycling rates for aluminum cans have also been effective in holding down the cost of litter pickup. This budget has held at around $200,000 for the past five years, and a deposit law would not lower it by more than $15,000. County road maintenance budgets might all together experience equivalent savings; certainly no more.

The equation in Montana therefore shows annual savings of $120,000 in landfill and road maintenance budgets, plus savings of a few kilowatts of electric energy at out-of-state aluminum plants, for an outlay of around $9 million to $10 million more in higher beer and soft drink prices. Deposit laws are not a cost-effective means of improving energy conservation, landfill conservation, and litter reduction levels beyond the levels attainable under voluntary recycling.

HJR 56
Interim Study

PROPOSED FINDINGS OF FACT
--submitted by--
MONTANA BEER AND WINE
WHOLESALERS' ASSOCIATION

1. Beer--Production and Packaging

2. Other foods and beverages:
    1. glass
    2. tin cans
    3. aluminum (semi-rigid & foil packaging)
    4. paper and cardboard

3. Distribution and marketing of beer

4. Disposition of containers
    (A.) Recycling--at present
    (B.) Municipal solid waste disposal--at present--under deposits

5. Roadside Litter

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1. BEER--PRODUCTION AND PACKAGING

All beer consumed in Montana is imported from out-of-state breweries. Approximately 60 percent is brewed in Washington, Oregon, or Colorado, at breweries located between 500 and 900 miles from Montana markets. Most of the rest comes from more distant breweries in California, Wisconsin, Minnesota, and Missouri, which lie between 900 and 1500 miles from Montana markets. An average brewery-to-distributor distance would be 900 miles.

Breweries produce draft beer in kegs (13% of Montana consumption) and packaged beer in cans and bottles (87%). Over 90% of the cans shipped to Montana are all-aluminum cans. The 87% of the beer market belonging to packaged beer consists of 71% for cans and 16% for bottles. One-fourth of the bottles sold are classed as refillable and three-fourths as non-refillable. However, at least half the breweries will buy back their non-refillable bottles and either wash them for reuse or melt them down for recasting.

Refillable bottles are heavier (13 lbs. per case of 12-oz. empties) than non-refillables (9 lbs.), and are interchangeable between brands as long as their glass is brown. Non-refillables usually have the name of the beer embossed in the glass, thus are not interchangeable. A case of empty aluminum cans weighs just over one pound.

Bottles must be shipped with more protective packaging than cans and are also taller, thus taking up more space. A truck loaded to capacity can carry twice as many cans as bottles. A full railroad car can carry just under twice as many cans as bottles. While aluminum cans cost a little more (between six and eight cents apiece to the brewery) than non-returnable bottles (five to six cents), the savings in freight on aluminum compensates for the difference. A refillable bottle costs about as much as an aluminum can

2., OTHER FOODS AND BEVERAGES
(A). Glass

The percentage distribution of glass bottles and jars nationwide is as follows:

Beverages	60%	
(Beer		33%
Soft Drinks		19%
Liquor & Wine)		8%
Food and dairy	29%	
Medicinal and health	5%	
Toiletries and cosmetics	4%	
Chemicals, exports, misc.	2%	

Montana's pro rata share of the food, juice, and dairy jars and bottles used nationally in 1978 comes to 45 million units. The glass milk bottle has essentially disappeared from the Montana dairy scene, so these 45 million bottles and jars were all used for foods and juices. Since wine entered the groceries, another 4 to 5 million glass bottles are expected to move through their shelves in the first full year.

(B). Metal cans

Montana's pro rata share of the tin cans used for grocery items other than soft drinks and beer is 115 million cans in 1978.

(C). Aluminum

Besides its use in beer and soft drink cans, aluminum is used as food packaging for TV dinners and other frozen foods. Montana's pro rata share of the national usage comes to 1.25 million pounds of aluminum packaging of this sort in 1978.

(D). Paper, cardboard, plastic

Total figures are impossible to gather for all the noodles, flours, frozen foods, convenience foods, etc., sold in paper bags, cardboard boxes, and plastic or plastic-coated containers. Figures from the Montana Milk Control Division show 63.7 million cartons of fluid milk and about 11 million cartons of other dairy products (cottage cheese, ice cream, yogurt, sour cream, butter) sold in 1978. Approximately 20 million egg cartons--half of them cardboard and half plastic--were used. Approximately 7 million boxes of breakfast cereal were distributed. The basic beverage container unit sold in groceries--the six-pack--comes in a cardboard or plastic assembly. About 50 million six-packs and larger assemblies of beverage containers moved through the groceries.

3. DISTRIBUTION AND MARKETING OF BEER

All beer shipped into Montana is consigned to the warehouse of one of the 50 licensed wholesalers and from there distributed to the approximately 2,000 licensed retailers. Some wholesalers have their delivery personnel also sell the beer while others divide the sales and delivery jobs and have the seller call first. Wholesalers' warehouses are located generally in the larger cities and their territories extend an average 100 mile-radius around each center. The average labor, vehicle, and fuel requirements to sell and deliver beer to retailers in Montana is 2.9 workers, 1.5 trucks, and 10,000 gallons of fuel per 100,000 cases of packaged beer delivered. These costs come to an average 78 cents per case or 11-12% of the retail selling price.

The efficient use of a beer delivery truck calls for its departure fully loaded early in the morning and its return substantially empty at the end of the day. A driver will pick up used kegs and refillable bottles from the on-premise licensees, chiefly taverns. Drivers do not generally pick up any containers from the off-premise licensees, chiefly groceries, but they do stop there to stock shelves and stamp prices on the beer. Sales volume of all beer is about 60% to off-premise retailers, 40% to on-premise retailers. If draft beer is excluded, the ratio is 70% off-premise, 30% on-premise.

2. Retailing at present

Retailers decide, in response to consumer preferences, which brands of beer and which types of containers they will stock. Retailers selling beer for off-premise consumption have noted a marked consumer preference for beer in cans, primarily aluminum cans. Among the apparent factors in this preference are these:

1. the can chills more quickly
2. the can will take less space and weigh less in a grocery bag.
3. the can will not break if dropped.

Off-premise retailers generally mark up beer over the wholesale price at the same percentage they use for other grocery items. On-premise retailers have a slightly higher markup and do not, save in some rural locations, seek a great deal of off-premise trade although the license allows it. On-premise retailers order just about all of the refillable bottles and also order substantial quantities of canned beer.

4. RECYCLING

Recycling in the broad sense has been in Montana for many years, but recycling of beverage container materials by recycling firms only began in 1970 or 1971. Profits in aluminum can recycling have enticed other firms to enter at least that sector, so that the larger cities in Montana have competition between recyclers for aluminum. In several cities, recycling centers are operated as sheltered workshop industries and their revenues support other d.d. programs.

From very small volumes in the first years, the volume of recycled materials has grown steadily each year. The aluminum can leads in recycling operations, followed by the no-deposit beer bottle of the nearer breweries. Markets for the steel can are marginal to unfavorable as are markets for most glass containers.

Aluminum cans, purchased at 17 to 21 cents a pound, are either shredded into chips or compressed into bales, and shipped by rail to plants in Alabama, Tennessee, or equally distant plants, to be melted and recast in sheets for can-making again. The glass beer bottles which are repurchased are shipped to Washington for sterilizing and refilling or to Colorado where they are broken down to cullet and recast as new bottles. The steel cans are really bimetallic, with aluminum tops. The technology required to separate these metals for re-use imposes costs which, added to shipping costs from Montana, make this container's recycling potential low. However, markets may develop for the bi-metallic can in the near future.

The refillable bottles are collected by distributors and returned to breweries or soft drink bottlers.

Containers for foods and other beverages are seldom if ever recycled. The familiar tin-plated can is in a position like that of the bimetallic beverage can--it could be recycled, and is in more urbanized areas, but in Montana recycling wouldn't pay.

4. MUNICIPAL SOLID WASTE DISPOSAL

(A). At Present

Approximately 600,000 tons of solid waste were generated in Montana in 1978. About 19,500 tons, or 3% of the total, represented beer and soft drink containers which ended up in landfills rather than recycling centers. The average cost of disposing of one ton of solid waste in a landfill in 1978 was $7.50

(B). Under Deposits

The difference between return rates with voluntary recycling and those attainable with deposits indicate that 3,000 tons of aluminum cans, 10,000 tons of nonrefillable beer and pop bottles, 2,500 tons of refillable bottles, and 2,500 tons of steel or bimetallic cans enter the solid waste disposal system rather than the recycling stream. A deposit law will not guarantee that all of these containers will be recycled if redeemed, since distance from the point of manufacture will impose prohibitive shipping costs in some instances. These packages (imported beers, mineral waters, premium domestic beers, some bimetallic cans, etc.) would still be hauled to the dump under a deposit law. Assuming then that 3,500 tons of cans and 8,500 tons of nonrefillable bottles now going to municipal disposal sites are intercepted by recycling under a deposit law, the total annual savings at the landfills would be about $90,000 statewide (12,000 tons at $7.50 a ton). Collection costs of $17-20 a ton should not be figured in, because many suburban and rural residents do not have trash collection service. In the cities where trash collection is provided, the recycling rates are higher than the statewide average and fewer beverage cans are put out with the trash.

5. ROADSIDE LITTER

There are many components of highway litter, and several ways of tabulating them. Counting each piece of litter as a separate item, beer and soft drink containers represent about 16-20% of all items littered. As the containers are larger than the average item, they make up 45-50% of the total volume of litter.

The Montana Department of Highways is responsible for controlling litter along state highways. One of its policies is frequent placement of trash barrels--on primaries every 20 miles but at least 20 miles from a city or town, and on interstates a rest area every 30-40 miles and at least 30 miles from a city or town. This does reduce litter rates. The barrels are emptied, and the remaining litter picked up, by contractors. Outlays to these contractors have run about $200,000 a year for the last 5 years.

RVING
NTANA
INCE
1939

MONTANA FOOD
DISTRIBUTOR'S ASSOCIATION

September 7, 1979

SEP 7

Mr. Jim Oppedahl
Legislative Council
State Capitol
Helena, Montana 59601

Dear Jim:

Enclosed are several reports on the bottle and can issue which I thought would be of interest to you and the committee. You may be familiar with these reports but I consider them about the best I have seen of the myriad being compiled nationwide.

I think that I informed you the Montana State Food Distributors Association at their annual meeting two years ago adopted a resolution they would favor a comprehensive and reasonable litter control act in Montana. At this year's meeting in the Holiday WEst in Billings, September 15, 16, 17, the Legislative and REsolution Committee will consider the litter problem, - Representative Howard Ellis of Milltown is chairman of this committee.

If you are interested you are welcome to appear before the committee and discuss the issue. The Montana Grocers have always taken the position that returnable bottles and cans brought into the food store is a health hazard to the public. If you have ever worked in a market and saw the filth in bottles coming into the store you would understand why the grocer is disturbed if the health department considers it nothing. The bottles are a great place to harbor cockroaches and once in the store delight in reproducing and nesting in available fresh food. The grocer is in constant battling against this obnoxious pest at considerable cost to maintain cleanliness which the public demands.

The Progressive Grocer report I consider the fairest and most factual because this publication is recognized by the food industry of the nation as the leader in making honest assessments of issues facing the grocery trade.

Sincerely,

Tom Haines
Manager

TH:m
cc: Bob Brand, President & Board of Directors of MSFDA

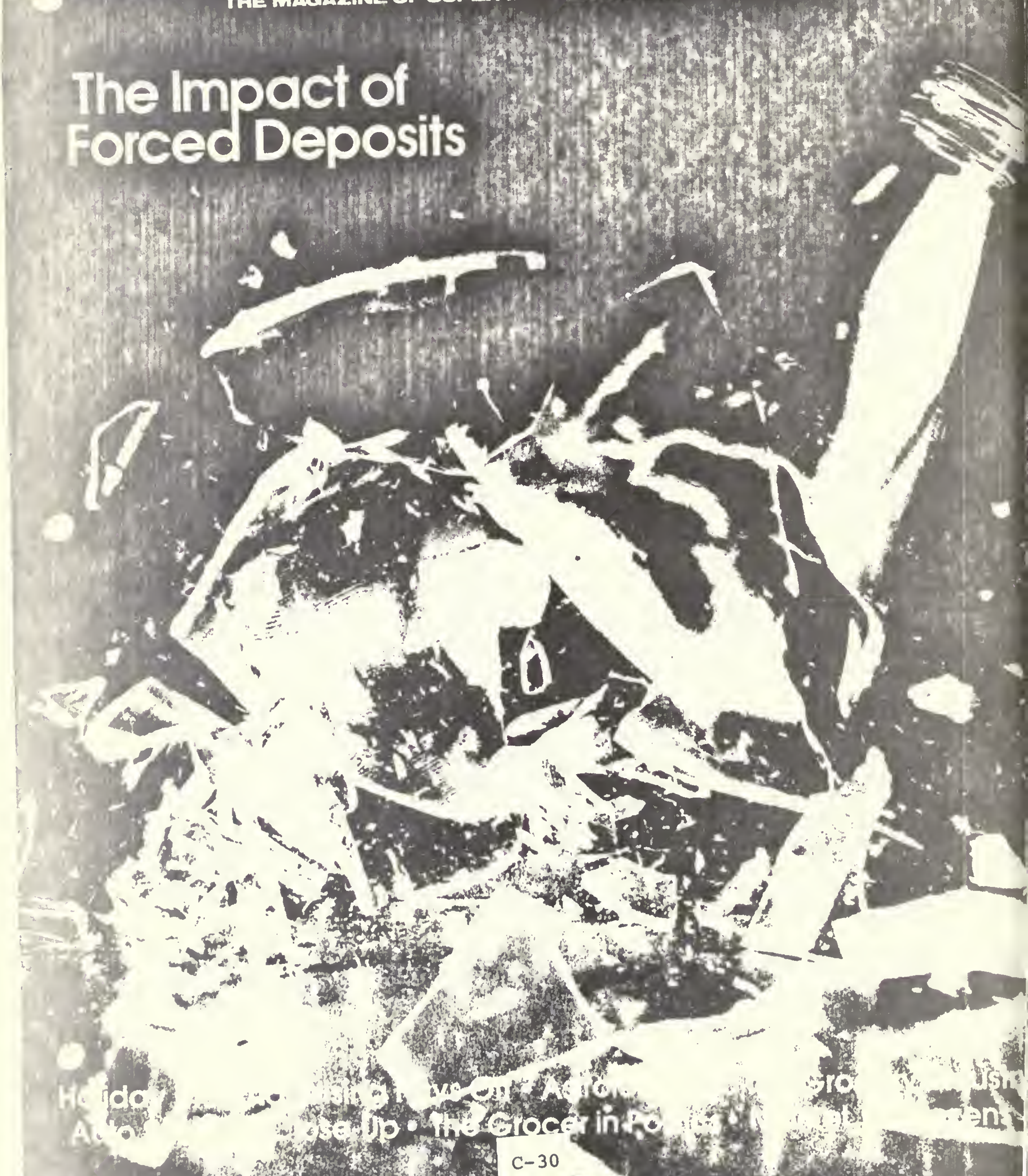
Member: NARGUS, F.I.A.E., Food Trade Press

OCTOBER 1977

PROGRESSIVE GROCER

THE MAGAZINE OF SUPER MARKETING/$2.50 PER COPY

The Impact of Forced Deposits



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C-30

Here, based on retailer experience in Oregon and Vermont, is what it takes in money, manpower and equipment to cope with returnables. Also: an alternative that works.

The Impact of

FORCED DEPOSITS

Since 1970 an incredible 1,200 "bottle bills" have been introduced in the 50 states and the U.S. Congress.

Like leaves littering the legislative landscapes all except four have blown away. But it seems certain in the next few years more will come floating down.

Indeed, a national law requiring deposits on beverage containers is considered a real possibility by environmentalists—and a potential disaster by super market operators, especially in larger cities.

The objective of bottle bills is undeniably virtuous: to engender a cleaner environment and to reduce expenditures for materials and energy. Proponents are unabashedly enthusiastic. The 1977 Report on Oregon's Bottle Bill, issued by the Oregon Department of Environmental Quality, starts with Governor Robert W. Straub's ringing assertion that, "We in Oregon, are proud of the success of the Bottle Bill, the first of its kind in the nation." The summary boasts that, "Oregonians support the Bottle Bill with an enthusiasm usually reserved for popular sports, motherhood and the flag."

Fighting a trio like that would seem callous at best and greedy and unpatriotic in the extreme. Yet grocers are crying "foul" for good reason. Says an Albertson's manager, "If we caused the problem of littering I'd say OK to a bottle bill. But here in Oregon, we're expected to pay the bill for the public's bad habits."

Reed Ray, Manager of Ray's Food Fair, Nyssa, Ore., says, "I think legislators have exaggerated the effect of the bottle law, making the general public feel that it's a great success. It's only success is having grocers become a garbage pick-up for the State."

George Lo Riparo, a Portland Thriftway operator, fumes, "The 'do-gooders' ought to have this miserable mess in their every-day living at home!"

"What bothers me," a super market owner states, "is that legislating against beer and soft drink containers deals, at best, with only a minor part of the litter problem. The major part is ignored with this approach."

To get the views of the only grocers who have actual experience with forced deposits, and to provide information for grocers in states where such laws are expected to be proposed, Progressive Grocer editors visited some 40 super markets in Oregon and Vermont. In addition, 127 store owners and operators there answered a detailed four-page questionnaire. Their comments are the basis for most of the quotes and statistics reported below.

Extensive interviews were also held with some 30 interested individuals, including chain and wholesale headquarters executives, beverage buyers, heads of container trade associations, state environmentalists and health officers, operators of commercial sanitation services, bottlers and beverage distributors, editors of Washington and Oregon newspapers and the leaders of state grocery associations.

The Oregon Bill—how it works

Oregon's bottle bill, passed in 1971, became operative October 1, 1972 and affects specifically malt beverages, mineral water, soda water and carbonated drinks. All "beverage" containers must bear a minimum deposit, clearly marked, which is paid to the distributor by the dealer and to the dealer by the customer. The minimum deposit is 5¢, except for "certified" containers (those reusable by more than one manufacturer) for which the the minimum is 2¢.

Dealers and distributors may not refuse to refund the deposit on empty containers of the kind, size and brand which they sell. Pull-tabs are banned.

Somewhat whimsically, the law permits establishment of redemption centers by any person in order to accept returned containers. Unlike Vermont, which has the wholesaler pass back the equivalent of 1¢ per container to the handler, there is no handling fee; so there are no redemption centers. Nor do the state's 300-odd recycling centers pay refunds. The cost is borne entirely by the retailer and distributor. (In Vermont there are only four redemption centers. "Even the handling fee can't compensate for the expense," says one bottler.)

How it doesn't work

The Oregon bottle bill served as a model for Vermont and the recently passed, soon-to-become-effective laws of Michigan and Maine. Some of the quotes in the Oregon bottle bill report are worth examining in the light of what Progressive Grocer's investigations found.

Claim: *Beverages sold in returnable containers cost less, as they always have, not only in Oregon but all through the nation.*

Our finding: Prices of soft drinks and beer in bottle bill states are as high or higher then neighboring states. We've queried operators with stores in both kinds of states, and bottlers, too, and their answers are that Oregon and Vermont prices, on balance, are "about equal," "slightly higher," or "somewhat higher." No one said they were lower.

5 Major Problems with Returnables

In interviewing super market owners and managers in Oregon and Vermont, it quickly became apparent to Progressive Grocer editors that five major problems were commonly experienced with forced deposits. In our subsequent mail survey, we asked them to rank these problems according to seriousness in their stores.

Respondents also wrote in their own choices for the top five. Four problems received multiple mentions: bottle breakage, customer complaints, interrupted checkstand operation, and theft, in that order. Also reported were increased funds tied up, pre-empted shopping carts, insufficient container shells, checkstand errors, lower profitability, work interrupted and reduced variety.

1. Extra labor for handling
2. Cluttered front of store
3. Insufficient backroom space
4. Sanitation
5. Decrease in beverage business

. . . And what do these problems mean to the retailer?

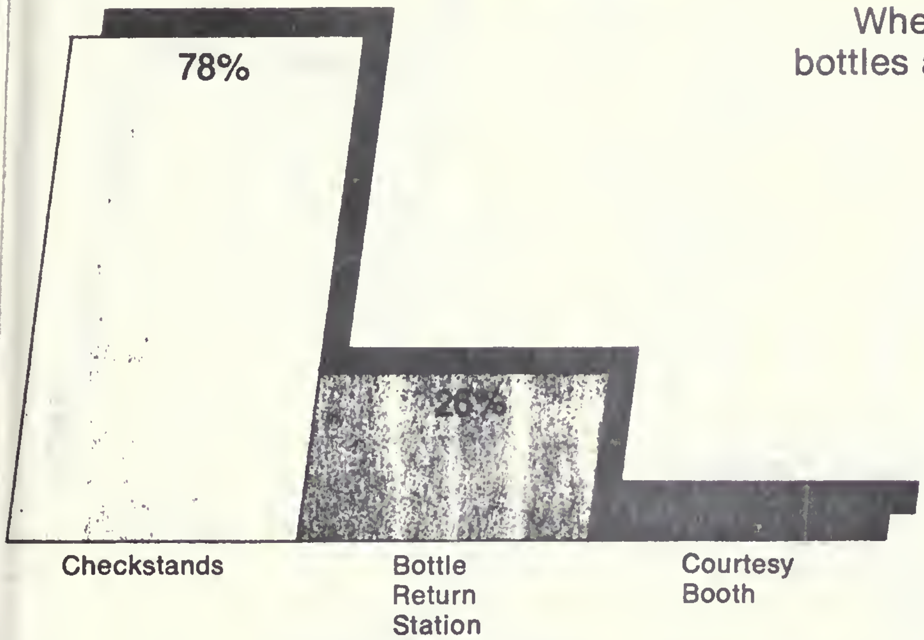
1. **Labor:** A super market operator can expect in the summer months to spend $258 a week to handle returnables and a smaller store $169, not including fringes. Half of stores have created a new position: bottle boy or container clerk.
2. **Clutter:** Three out of four stores accept returnables at the front end yet the median amount of space provided there is only 32 sq. ft.
3. **Backroom:** A median of 250 sq. ft. of backroom space is devoted to returnables. One-quarter of retailer respondents find it necessary to augment this with 200 sq. ft. of space outside the store.
4. **Sanitation:** Clean up and pick up is more intense and expensive under forced deposit conditions. Unwashed containers smell, partially filled containers spill, bottles break and some operators find they have increased the frequency of exterminator services.
5. **Decreased Business:** To reduce handling expense most retailers have cut back on the number and variety of beverage items. Cans and non-refillable bottles especially have suffered and private label has declined.

Roger Palmer, Grocery Merchandiser for Albertson's, Portland, Ore. Division, explains, "Overall I'd say that tonnage of beverages has returned to normal since the bottle bill. What makes price comparison difficult is that Oregon is currently under a two-price approach: very hot ad specials offsetting what amount to higher 'everyday' prices."

Cost of handling is a factor that the public pays in the form of higher prices, says a Grand Union buyer of beverages for stores in Vermont and New York State. He explains, "The 1¢ handling charge is already in the cost of a six pack of soft drinks or beer. What retails for 6 for $1.39 in New York costs consumers 6 for $1.49 in Vermont—and that is before the customer puts up an additional 30¢ deposit."

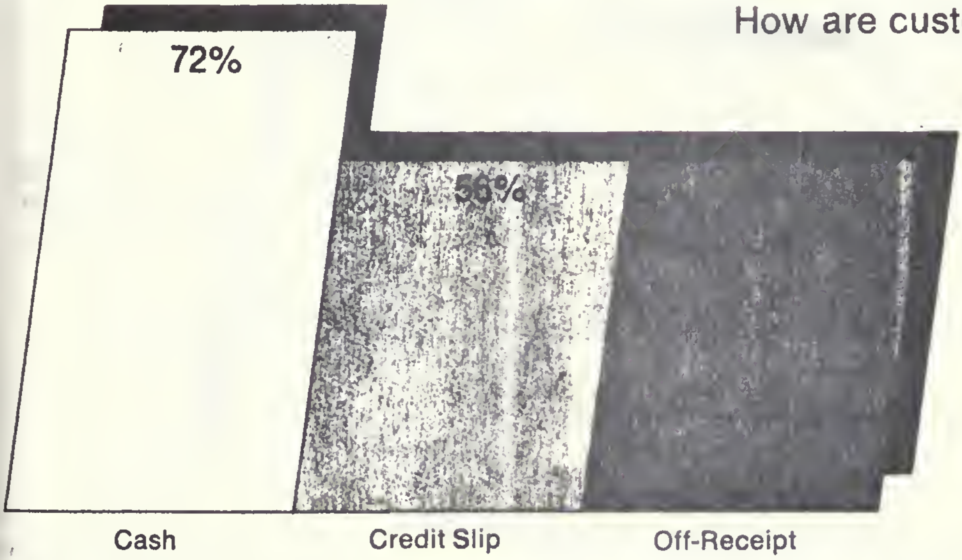
If customers redeem 100% of their deposits there is no loss to them. But to retailers the deposits are a sales inhibitor. An Oregon super market op-

Where do customers take bottles and cans for refunds?



The most popular spot for customers to return bottles and cans is the checkstands, but one out of four stores uses a bottle return station. In 52% of these stores the station is located somewhere at the store front (usually alongside the windows) but in the remainder the station is in the rear of the selling area. Some stores use more than one arrangement. For example, it is common practice in evening hours to close the bottle station and accept bottles at the checkstands. Using the courtesy booth for returnables is rare, primarily because of space considerations.

How are customers paid refunds?



Method of refunding deposits is a practical matter primarily dictated by where the customer returns containers but influenced also by the number of persons in the checkstand queue, the amount of cans and bottles being returned, time of day and other considerations. Many operators use all three methods of payment. Some like to pay cash only, others prefer subtracting deposits from the customer's receipt at time of ring-up. Credit slips have to be carefully written and signed because some customers kite the figures.

erator says, "People are less likely to purchase a case if they have to pay an extra $1.20 for deposit." Vermont retailers also complain that beverage case sales have declined markedly.

Sales tax differentials are another factor clouding the price issue. Vermont shoppers cross the border to shop in New Hampshire and Washingtonians cross into Oregon in order to save the tax. A Vermont retailer explains, "I don't sell half the beverages I should—first, because of the tax situation and second, people would rather not have to put up with returnables."

Shoppers who prefer one-way containers frequently buy beverages across borders no matter what the tax situation (see quotes).

Claim: *Sales have not fallen. They have increased.*

While some retailers insist that their tonnage sales have returned to pre-bottle bill days (following the 1974 recession, inflation and the sky-high rise of sugar prices) our survey showed more retailers (71%) reporting increases in soft drinks selling prices than increases in dollar sales (37%); the results were almost exactly the same for beer.

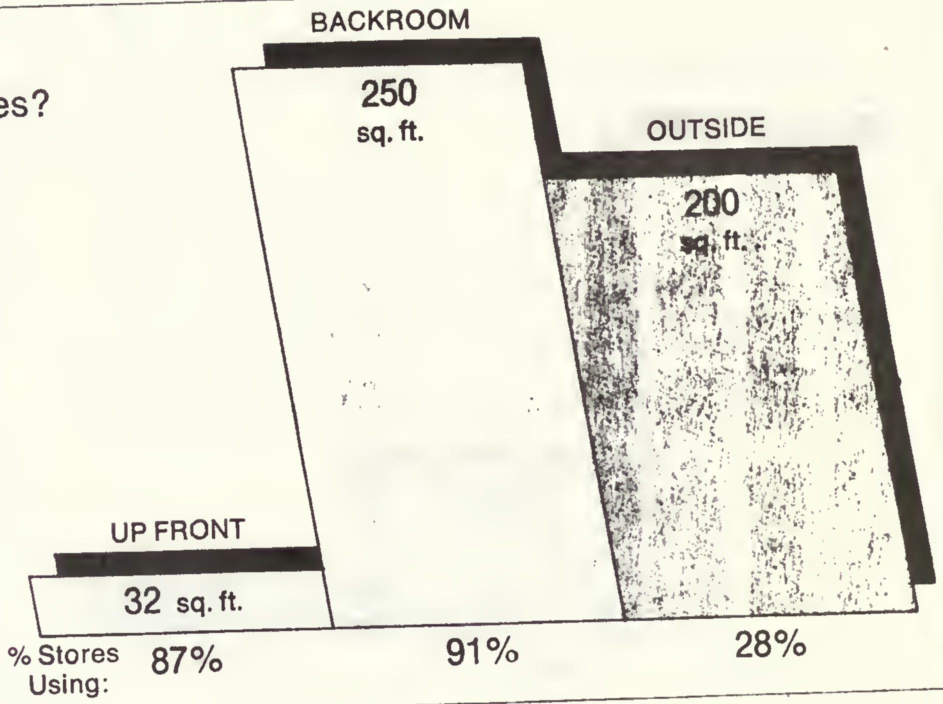
In effect they are saying tonnage increases didn't keep pace with price and dollar sales increases.

Narrowed customer selection, the need for customers to prepay deposits, the inconvenience of returning empties and loss of business across state lines (more so in Vermont than Oregon) are all sales depressants. Close proximity to the border is not a requisite. One retailer in Oregon 100 miles from California reports out-of-staters refusing to buy beverages for their travels because they wouldn't get their refunds when they returned home.

FORCED DEPOSITS

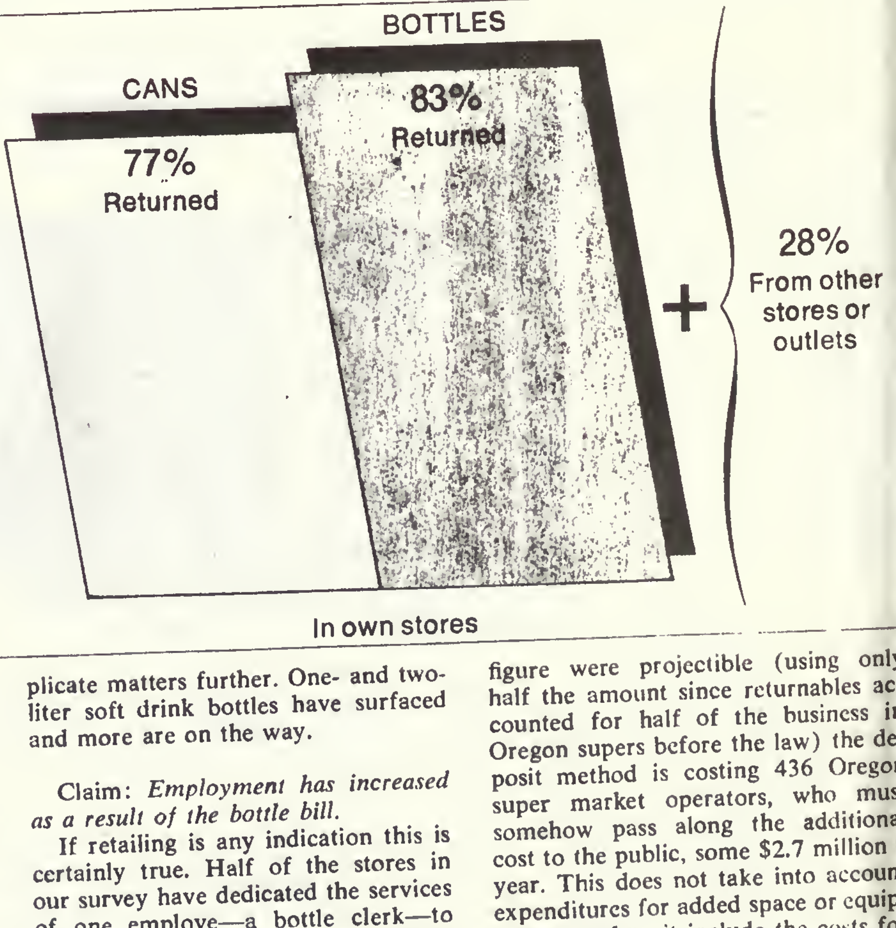
How much space is devoted to returnables?

Here are median figures for space given to returnables. (Half of respondents had areas larger than these and half had areas smaller.) Insufficient backroom space was cited as the third most serious problem with returnables. One solution —outside storage—was resorted to by 28% of the super markets in the group, generally in the form of fenced-in corrals, covered and uncovered, or used trailer truck bodies. Basements and even a separate building are other responses to the space squeeze. Because of security and supervision problems and exposure to weather, outside storage is an unpopular solution.



Per cent of containers returned to a store

We asked retailers to estimate the percent of containers sold in their own stores which are returned for refunds (left side of chart) and then what percent of all returnables they thought originated in other stores or outlets. The figures suggest that super markets (more than smaller stores) can expect to redeem other outlets' containers. The reason, sey retailers, is that customers like to save up bottles, no matter what the source, for a stop at the super market. Figures here are averages but median figures were quite similar.



Claim: *The aluminum can has not disappeared nor has any container been banned.*

True, except for pull-top cans. It is a consolation to retailers in that it offers the opportunity to give customers wider choice. But as cans have returned to the scene, the problems of sorting and storing empties have been compounded.

Competitive forces have caused retailers to expand their offerings of brands, flavors and sizes of bottles as well.

And metric sizes promise to complicate matters further. One- and two-liter soft drink bottles have surfaced and more are on the way.

Claim: *Employment has increased as a result of the bottle bill.*

If retailing is any indication this is certainly true. Half of the stores in our survey have dedicated the services of one employe—a bottle clerk—to returnables. This position is a new one.

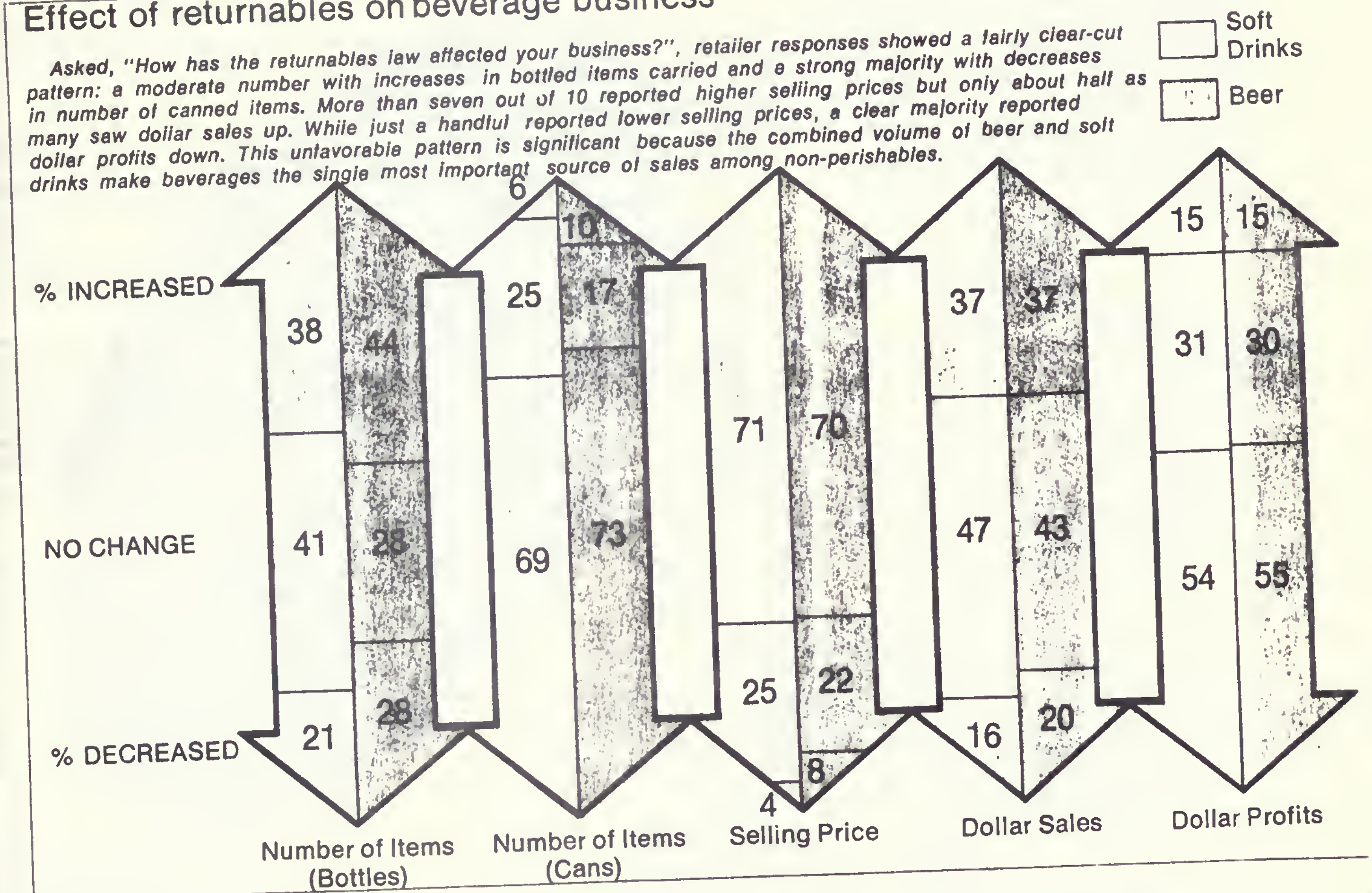
Our study showed a typical super market spending about $13,400 a year for labor to handle returnables. If this figure were projectible (using only half the amount since returnables accounted for half of the business in Oregon supers before the law) the deposit method is costing 436 Oregon super market operators, who must somehow pass along the additional cost to the public, some $2.7 million a year. This does not take into account expenditures for added space or equipment nor does it include the costs fo 1,856 smaller stores or bottlers an distributors.

Whatever the precise cost to th public, it is enormous—and largel

FORCED DEPOSITS

Effect of returnables on beverage business

Asked, "How has the returnables law affected your business?", retailer responses showed a fairly clear-cut pattern: a moderate number with increases in bottled items carried and a strong majority with decreases in number of canned items. More than seven out of 10 reported higher selling prices but only about half as many saw dollar sales up. While just a handful reported lower selling prices, a clear majority reported dollar profits down. This unfavorable pattern is significant because the combined volume of beer and soft drinks make beverages the single most important source of sales among non-perishables.



Effect on private label

Private label items declined under forced deposit bills and with them, customer choice. Typically, before passage of their state's bottle laws, almost three in four retailers in our survey carried private label soft drinks, and one in three beer. Afterwards, the number of private label items declined, sometimes to zero. Only one retailer reported an increase in number of private label beverages.

No. of Private Label Items	Increased	Decreased	No Change	Discontinued	Never Carried
Soft drinks	—	18%	24%	30%	28%
Beers	1%	13	17	4	65

Why the Fuss?

Retailer concern with soft drinks and beer is well founded. As a combination they represent the single most powerful "category" among super market non-perishables.

From 1960 to 1975 per capita consumption of beer by the 18-and-over population grew by one-third; in the same 15-year span soft drink consumption grew almost 125%. The end result was a gain of 64% for the period, which catapulted their combined volume into the area of 5.4% of total store sales, with share of gross profit dollars only a fraction behind that. (In convenience stores the two are roughly four times as productive in sales and profits.)

While beverage consumption was growing, packaging was changing radically. In 1950, soft drinks in one-way glass and metal containers were virtually non-existent. But by 1975 they had captured 63% of the business. Soft drink returnables plummeted to 37%.

Meanwhile, in the beer market one-way containers had carved out an 84% share of the market, up from 28% in 1970.

Given freedom of choice, the consumer has demonstrated an overwhelming preference for the convenience and cleanliness inherent in the one-way container.

Interestingly, the very term used to describe a beverage container can be an indicator of where a person stands on the bottle bill question. To a marketer, non-returnables are "one-way" containers, convenient, clean and in tune with today's realities and lifestyles. To an environmentalist a non-returnable is a "throw-away"—a litter prone, energy wasting manifestation of the American public's proclivity for waste.

The labor cost of returnables

Six different classes of store personnel are usually involved in accepting, handling, sorting and refunding for returnables, at a weekly cost of $258 in the summer months for super markets and $169 for smaller stores (less then $1 million sales). It is quite likely that in winter time the figures would decrease somewhat as beverage sales decline from summer highs. However, since these costs do not reflect fringe benefits, pegged at perhaps 20% additional, the totals would seem to be a fair reflection of reality.

	Total Hours*	Average Hourly Wage	Cost Per Week*	Projected Cost Per Year**
Super Markets ($1 million or more)	69	$3.74	$258	$13,416
Small Stores (Less than 1 million)	50	$3.38	$169	$ 8,788

* Summer months
** Including fringe benefits

Who's involved . . . and at what cost

Since customers most frequently return containers to the checkstands, it is not surprising that checkers are involved in the returnables function more often than any other group. Hours are another matter: the more time consuming counting and sorting tasks are assigned to lower-paid bottle handlers and carryout boys. On average, super markets employ three of these categories of employees in handling returns and refunds.

Summer months	% Stores Using	Avg. Hours Per Week	Average Hourly Wage	Cost Per Week
1. Checkers	88%	16	$5.49	$87.84
2. Carryout boys	83	32	2.94	94.08
3. Assigned bottle handlers	53	40	2.54	101.60
4. Manager/assistant managers	43	5	6.84	34.20
5. Clerks	31	12	5.82	69.84
6. Courtesy booth personnel	4	34	3.95	134.30

invisible. The Oregon State Highway Division in 1975/1976 spent $633,353 for roadway and right-of-way maintenance and litter collection, including the costs of the Oregon Youth Litter Patrol, which is funded through sale of "vanity" license plates. Oregon super markets are spending four times that amount in added labor alone to help solve the litter scourge. All food stores are likely paying 10 times the highway division's total.

Zeroing in on soft drink and beer containers on highways raises two questions: What about the other 80% of litter? What about non-highway conditions? Litter, as shown later, is an all pervasive problem entailing a multiplicity of waste materials.

Claim: *Distributors and dealers are managing the flow of returned containers efficiently, sorting and handling them with no adverse effect on health and safety standards in stores or other outlets.*

Our survey showed returnables to be a burden to retailers in terms of added labor, clutter at the front end, insufficient space for sorting and storing and so on.

Among specific complaints of retailers is increased breakage, cuts to employes, smelly containers, spillage and necessity for more frequent insect sprayings.

Claim: *Oregon retailers and distributors have cooperated and supported this new law from the start, making the transition smooth. Retailers continue to handle the returns themselves rather than requesting the creation of redemption centers as provided.*

As detailed later, 30% of super market operators surveyed were for abolishing their states' bottle bills, another 57% would modify them. One of the most frequently offered suggestions is establishment of state, bottler or wholesaler operated redemption centers.

Claim: *In Oregon, returnable soft drink bottles are reused about 24 times and beer bottles about 20 times. At this rate, the returnable bottle system uses one-third the energy consumed in the throw-away system.*

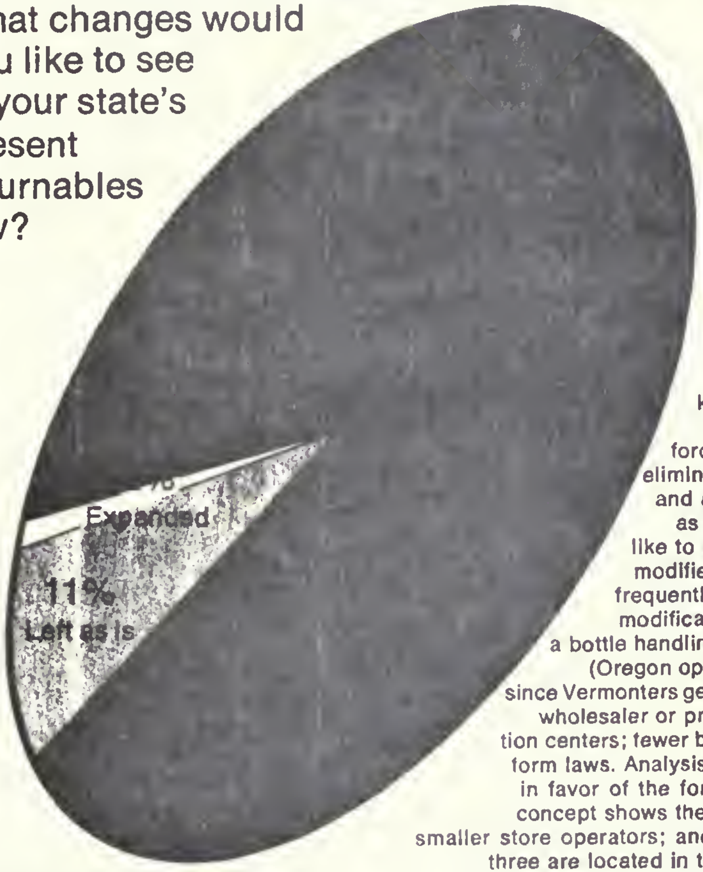
National Soft Drink Association agrees that 15 years ago average trippage for beverage bottles was 24 to 34 trips but says now the range is 10 to 12 trips, adding that in some urban areas it is more like 3 to 6 trips. "City people, especially apartment dwellers, don't have the room to store empties. And they don't want the bugs that accompany empties, either," says one spokesman.

In theory, says one canner source, a complete national conversion to returnables would reduce the energy requirements to produce beverage containers minimally: to .0019 of the national energy total—a reduction of .0029 from 1970's total of .0048.

Proponents of returnables say that energy costs are also saved on the amount of garbage that must be hauled away but a conversation with William Bree, Program Executive, Solid Waste Management Division of the Department of Environmental Quality for Oregon, drew the admission that not all trade-offs have been considered. Among the oversights: the need for super markets to build, heat and light added space in order to accommodate returnables.

Ken Medendorp, Director of Store Development for Spartan Stores in Michigan, says his cooperative is designing 800 sq. ft. additional into new

What changes would you like to see in your state's present returnables law?



Three out of ten super market operators would like forced deposits eliminated entirely and almost twice as many would like to see the laws modified. The most frequently mentioned modifications are for a bottle handling allowance (Oregon operators only, since Vermonters get one); state, wholesaler or private collection centers; fewer but more uniform laws. Analysis of all those in favor of the forced deposit concept shows they tend to be smaller store operators; and two out of three are located in towns of less than 10,000 population.

Super Markets
($1 million or more sales)

What extra investments have been made to handle returnables?

Here, ranked in order of frequency, are eight readily identifiable extra costs, some one-time, others ongoing, which retailers say they incurred as a result of forced deposits. The highest reported expenditures were $18,000 construction for interior additions and $16,000 for an attached outside bottle shed. Several retailers bought used trailer trucks for about $2,000 each and dropped them at the rear of the store for use as bottle sheds. Uncovered fenced-in corrals have proved susceptible to theft of returnables. One Vermont retailer gives up $6,000 in yearly handling charges to have an outsider perform sorting and storing functions.

	% of Retailers Who Made Investment	Average Cost
1. Special wheeled bins	64%	$ 356
2. Printed refund pads	58	15/mo.
3. Extra shopping carts	56	613
4. Construct new storage space: Outside store	54	$150-$16,000 range
5. Construct new storage space: Inside store	41	$75-$18,000 range
6. Additional sanitation service	37	13/Mo.
7. Storage racks/shelves	34	230
8. Outside pickup service	8	Up to $6,000

super markets in the $100,000 weekly class. "And that may not be enough," he insists. "Furthermore, I estimate that 90% out of 460 stores in our co-op are physically underequipped to handle returnables. Especially city stores."

Also unclear are the added fuel costs associated with returning containers to bottlers and wholesalers and the loss of backhaul space to chains which must transport their own private label empties.

Alec Murch of Coca Cola Bottling, Claremont, N.H., says, "My trucks to Vermont go out 40% empty compared to New Hampshire. It's costing me $200,000 a year to run my trucks now where it used to cost $80,000. Inflation is only part of the cost. I've had to install an expensive bottle cleaning plant which has added tremendously to our fuel bills. We need more inside storage, now, too. I'm convinced that energy savings are vastly overrated."

States are atypical

Oregon and Vermont, say anti-deposit spokesmen, should not be used as a model for any state's bottle laws.

Oregon represents only ¼ of 1% or so of soft drink consumption and 1% of beer. The state has long been a "returnable" one, with more than half of its beverages already sold in refillables. Thus, the disruptions have been considerably less than would be experienced by retailers with higher percentages of one-way containers. Oregon's population is 2.3 million, with 24 persons per square mile. The only large city is Portland, population 380,000.

Vermont is even more rural and tourist-oriented than Oregon. Population is only 480,000 and it has a population density of 49. (Some high density states: New Jersey-935, New York-365, Ohio-250, Massachusetts-702, Pennsylvania-261, Michigan-156).

On balance, the argument goes, the forced deposit approach reduces consumer choice, causes expensive disruptions for retailers and wholesalers, and represents a heavy cost to the consumer in the long run.

As a litter-solving solution it is incomplete, addressing only part of the symptoms of the problem while ignoring the root causes. As an energy saver its effects are doubtful. ☐

What retailers say:

PROS & CONS

of Forced Deposits

Four out of five of Oregon and Vermont retailers are in favor of eliminating or modifying forced deposit bills, compared to those who favor them "as is" or who would like them expanded to include other kinds of containers.

Here in about the same proportion are comments for and against forced deposits.

FOR:

"The biggest thing is attitude. I was for the bottle bill and still am because our highways are clean. I've traveled other states—even Hawaii—and they're a mess. So I want to make the system work in my store, and it does, because I keep my people on top of the job."

Super Market Operator,
Vermont

"I believe the bottle bill is a good idea; however, I feel the smaller grocers are being hurt by getting back far more empties than they sell. I think if 1¢ a container charge was put in effect all stores would be better off."

Super Market Operator,
Oregon

"We have supported the bottle law since its start. In terms of conservation and beauty of our state roads and stream and lakes, it has made Vermont a much better place to live. Also, in Vermont we are paid a 20% handling charge and the bottle law is a profit-making operation in our location."

Super Market Manager,
Vermont

"At first there were a few problems but they were solved within the first two to three months. It took the general public a while to adjust to the deposit bill but their acceptance now is quite favorable since they see the positive results that have come about."

Super Market Manager,
Oregon

"I do not feel forced deposits after the first six months has any affect on customers. They, the customers, have gotten used to the idea and want the items so they are not bothered. It affects retailers on beer bottles because of the companies' reluctance to pick up empties."

Super Market Manager,
Oregon

"I like the law very much. I believe it has really helped clean our beaches and roadways. It has *reduced* the number of sizes of containers of beer and soft drinks, reducing somewhat the need of space and inventory—and that means saving money. Give us a handling allowance to defray the costs to us of handling and sorting and it is a *very* good program."

Super Market Operator,
Oregon

PROS & CONS

bottles by the cart load—$15 to $20 worth at a time."

Super Market Manager, Vermont

"One of the costs of the forced deposits that tends to be overlooked is the amount of money tied up in deposits on inventory. We prepay our deposit to the bottler or brewer, of course; so with 700 cases of beer and soft drinks sitting on the shelves we've got—figuring an average of seven cents deposit per container—some $1,500 or so tied up at all times.

Super Market Manager, Oregon

"Before the bottle bill our checkers were handling perhaps $3 or $4 in deposit refunds per shift whereas today they may handle ten times that. The opportunities for theft are obvious. That's one reason electronic registers help. They give each checker's refund amount and it's an easy matter to see whose percentage of refunds-to-sales is out-of-line."

Super Market Owner, Oregon

"My two biggest headaches are bottle and can returnables and unit pricing changes. I've got one man who has appropriated a twelve by twenty room just for accepting bottles, issuing credit slips, sorting and dealing with vendors. My other store people are only too happy to tell customers to 'see the man in the back of the store'."

Super Market Manager, Vermont

"What evidence do I have that forced deposits have affected my business? The amounts of canned beverage purchased in the state of Washington that is in my customers' cars! They hate forced deposits!"

Super Market Operator, Oregon
(15 Miles from Washington)

"Out of state people—tourists, bus tour people—resent the deposit law—some refuse to buy. They'll take small juices instead. Local shoppers are about 50-50 as to approval or disapproval of deposit law. Our town has no industry, lots of wealthy families, many of whom are ardent environmentalists."

Super Market Manager, Vermont (12 Miles from New Hampshire)

"While I'm for the bottle bill, I'd say sanitation problems have increased. When I recently heard my checker scream I thought it was a robbery. But it proved to be a live mouse in one of the pop bottles. Twice we've had customers bring in soda bottles—unopened—with foreign objects in them: a tooth brush in one instance and a matchbook cover in the other."

Super Market Owner Vermont

"Our entire backroom is taken up by bottles and sorting. We are not able to carry a back inventory on groceries."

Super Market Manager, Oregon

"Customers from Washington (about 25% of our business) will not buy Oregon returnable cans. Customers in Oregon go to Washington to buy ten cases at a time so they won't have to make bottle returns. They don't like to pay deposits on containers or to store *dirty* containers around their homes. Customers testify to these facts."

Super Market Operator, Oregon
(11 Miles from Washington)

"We dropped all canned sodas as the result of the forced deposits law but not canned beer. You *can't* drop canned beer. But we know we're losing sales to New Hampshire stores even though we're 14 miles from the border."

Super Market Manager, Vermont

"When the bottle bill came on most stores quit carrying beer in cans. We all went to standard bottles. Now the trend is to more and more sizes and kinds of bottles. We now have four kinds of bottles for one brand alone. But what bothers me is the mess."

Super Market Manager, Oregon

AGAINST:

"Those returnables piling up in the backroom are a real pain. The meat man and the produce man are constantly on my back about my hogging all the space in the backroom. On delivery days it's especially bad."

Super Market Manager, Vermont

"Returnables in our store aren't just a regular pain, they're a real boil on the butt! At this moment I've got 35—count 'em—35 shopping carts and bins tied up with empties. We redeem twice as many as we sell. Customers kite their deposit credit slips. We're constantly mopping up spills and cleaning up broken glass. There's got to be a better way!"

Super Market Manager, Oregon

"The containers are stored outside in a fenced area. We have lost at least $1,000 worth of returnables as a result of break-in because of the insecurity.

"Returnable container depots spotted throughout the marketing area, we think, would be a partial solution to our problem. The operating cost of these depots could be guaranteed by the distributors and retailers. As a retailer, I would prefer paying my share of the handling costs in this manner as compared to our present method. It would save us money, plus much better customer service at the store level."

Super Market Operator, Oregon

"The authorities were hot to put a deposit on wine bottles—until it was pointed out to them that the State, as the sole purveyor of liquor, had a unique opportunity to lead the way by putting a deposit on liquor bottles. Suddenly the wine bottle deposits didn't seem that important."

Super Market Manager, Oregon

"Bottles and cans returned are about 2½ or 3 to 1 in what we sell. Also, people try their best to return non-returnables from out-of-state. A large loss is in this area."

Super Market Operator, Oregon (55 Miles from Washington)

"People buy their beverages at taverns, small stores, or at a store holding sales. Then they bring them to the stores that give them the least trouble. That's us. On Sundays or the first of the month they fill up all our carts and we have no carts for customers. We have bought as high as $600 back in one week. This ties up a lot of money."

Super Market Operator, Oregon

"The approach is wrong. Deposits should be made at store level only and stores should crush the bottles and cans and recycle the remains. Distributors could increase prices slightly to cover cost of new glass and cans."

Super Market Operator, Oregon

"We discontinued several items in national brands, namely canned beer—not handled at all. We don't get the deals we used to get on pop and beer, either. The bottle law is a real pain in the posterior.

"The state of Oregon still has one hell of a litter cleanup crew picking up roadsides. The whole damn program is a farce."

Super Market Manager, Oregon

"Empties were such a pain we're glad to forfeit the penny for each can or bottle from the vendor by turning over sorting and counting to a local service. Now we have fewer problems with breakage and smell of stale beer. We still have to stockpile our private label bottles for every-other-week pickup, though. It's a good thing I'm blessed with an oversized backroom."

Super Market Manager, Vermont

"We have a small store with only three checkstands, so our system calls for customers putting empties into shopping carts at the front. Very messy. What I don't like is those customers with large returns standing behind the registers trying to get special preference from the checkers to get refunds. Also, I'm across the border from New Hampshire and I don't sell half the beer I should!"

Super Market Manager, Vermont

"We have increased cuts of personnel from broken bottles."

Super Market Operator, Oregon

"People are still throwing bottles and cans on the side of the road even with the deposits. Kids bring dusty, dirty

LITTER TAX

A Better Way?

Retailers in Progressive Grocer's survey voted overwhelmingly in favor of abolishing or amending the forced deposit laws in effect in their states. Even those who are in sympathy with the law often agree with one of the most frequently voiced sentiments: "There's got to be a better way." But is there?

The state of Washington thinks so. In the four years that its *Model Litter Control Act* has operated, litter accumulation in the state has dropped to 34,125 tons a year, compared to an estimated annual rate of 100,000 tons in 1971—a reduction of two-thirds.

Unlike other states whose statistics zero in on highway litter, Washington knows what *all* of its litter is composed of and where it falls. The figures shown in the accompanying charts are based on litter counts made by URS Company, a national research firm which conducts on-going sampling of six types of Washington highways: measured residential, commercial and industrial areas; and national, state and local parks and recreational areas.

In enacting the first-of-its-kind Model Litter Control Act, Washington State took cognizance of two basic facts: beverage cans and bottles represent a minor part of the littering problem and the general public is the litter bug, not manufacturers or retailers. Accordingly, the litter problem was viewed as one of education dealing with the total spectrum of litter.

> Forced deposits, by concentrating on only 20% of the problem, are an expensive, ineffective answer to the litter problem.

Industry itself—with active support by the Washington State Food Dealers Assn.—suggested that the burden of paying for the program should be borne equally by those whose products ended up as solid waste. And so a special "litter tax" of .00015% on gross sales—equivalent to $150 per year per $1 million—was levied against thirteen manufacturing, wholesaling, retailing and food service industries which contribute most to litter. Groceries, tobacco products, newspapers, magazines and paper products are included, as well as soft drinks and beer. The result is that retail food stores bear one-third of the $860,000 annual assessment instead of sharing the returnables cost exclusively with bottlers and beverage distributors. At the same time they are free to operate with as many or as few returnables as their customers demand.

Litter Control Act funds are used strictly for anti-litter efforts with the bulk spent for educational programs designed to prevent litter through greater environmental awareness.

Programs are conducted by the Department of Ecology and include grants to local governments, public events, youth litter patrols, citizen's voluntary clean-up drives, media promotions and even an elementary school curriculum. Under the law, litter bags are required in every motor vehicle and powered boat. These, as well as posters and other aids, are provided by the Dept. of Ecology free of charge to participating individuals and groups. A minimum fine of $10 per littering offense is mandated, intentionally made moderate to encourage strict enforcement.

In practical terms the benefits to the retailer are enormous. A super market doing $3 million would pay only $450 tax and depending upon the degree of returnables in his operations, would save thousands compared to the forced deposit system.

Which state is cleaner?

While this is good for the retailer, how does the approach compare in results with Oregon's and Vermont's.

Statistics on effectiveness of anti-litter efforts in the Oregon Bottle Bill Report of 1977 concentrate on roadside conditions. By 1973/1974, two years after the bottle bill went into effect, an Oregon Highway Division survey showed beverage containers in roadside litter had declined 83% by piece count.

On the surface this would seem to

be wildly successful but when one considers that beverage containers comprise 20% of litter and only 49% of litter falls on highways (see table) the results are less spectacular.

In the report attention is not called to the fact that *total* litter on highways declined only 38% by piece count—or 47% by cubic volume. These results are discernible only if the reader makes his own calculations. No measurements are given for off-highway locations. No survey has been made since 1973/1974. The report notes that there was no necessity for one. "Roadside litter reduction was the original goal of the law and is the most obvious result," the Report notes.

Highway litter data only

Vermont's Agency of Environmental Conservation, Division of Protection, reported, also in 1973/1974, that a litter survey by the Vermont Highway Department showed beverage container litter on highways down 76% from pre-law days. Litter from other sources declined 5% with total litter down 38%—by volume, not piece.

For simplicity it might be best to score the official decreases in all litter in terms of cubic feet.

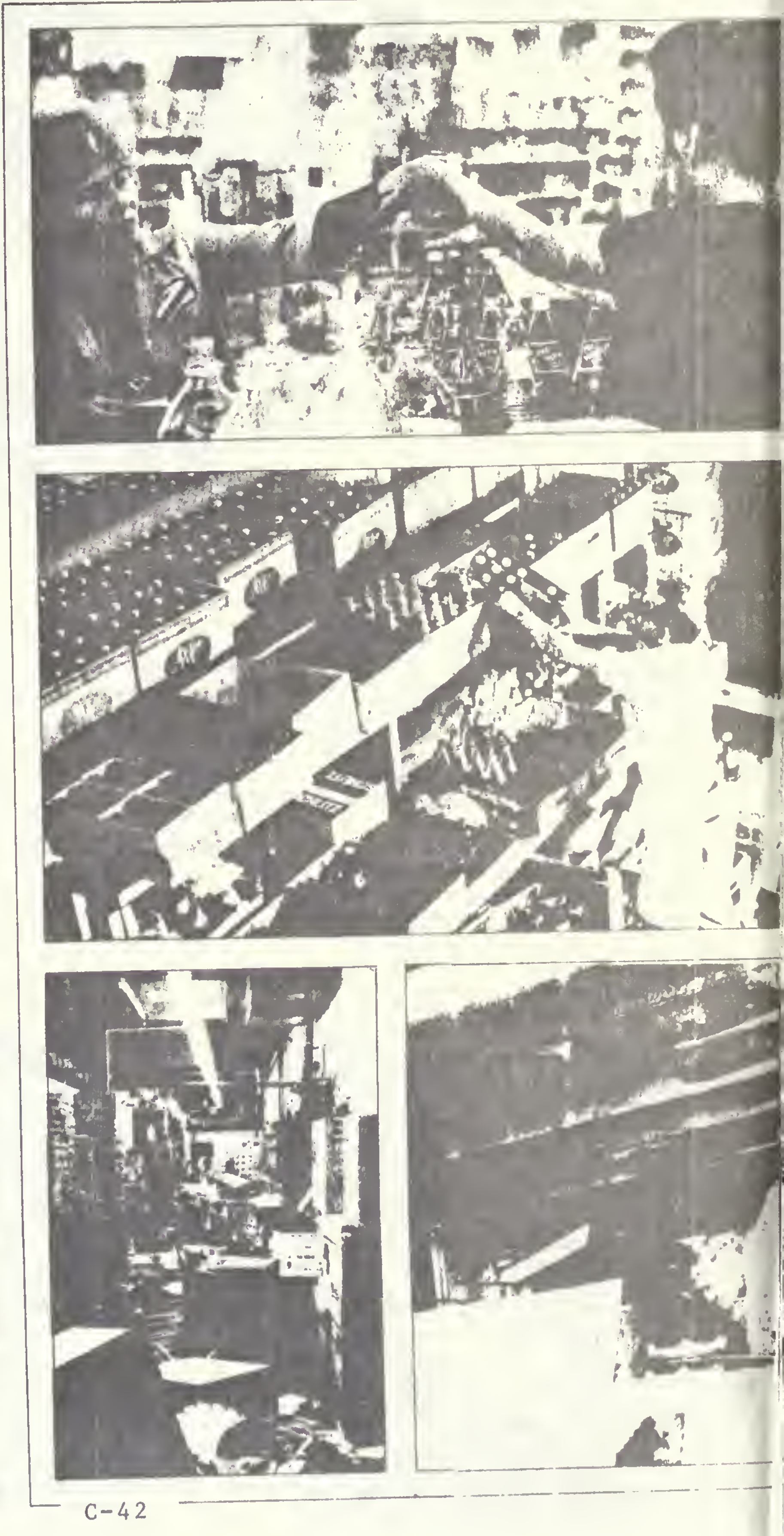
		% Decrease in:	
	Last Measurement	*Highway Litter*	*Total Litter*
Oregon	1973-1974	–47%	N.A.
Vermont	1973-1974	–33%	N.A.
Washington	1976	N.A.	–66%

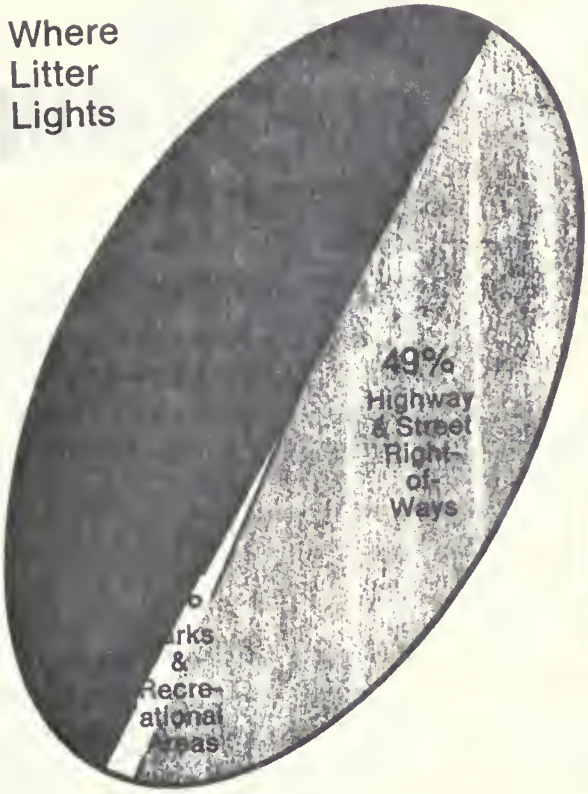
N.A.—Not Available

The Washington statewide reduction in all kinds of litter exceeds that of the other two states' highway litter reduction. (For the record, Washington's 1975 total litter for highways, county roads and city streets was 22,800 tons or 56% of total. In 1976 this declined to 16,503 tons, 49% of total.)

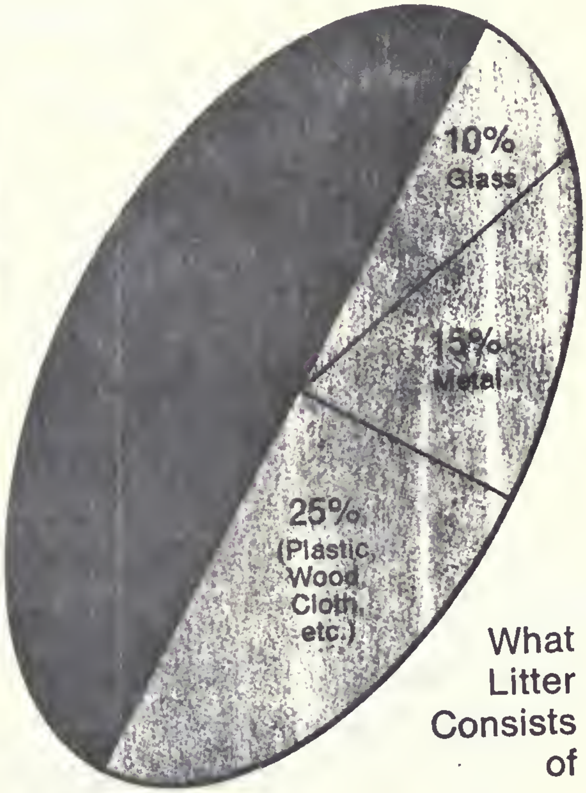
Given the concentrated effort devoted to highway litter in Oregon and Vermont, it is likely that their highway cleanliness has improved since their last measurements. But given the all-pervasive nature of litter, the Washington approach, bottle bill opponents say, is clearly the superior solution.

Retailers who are familiar with both methods, are inclined to add a fervent, "Amen." **Robert E. O'Neill**



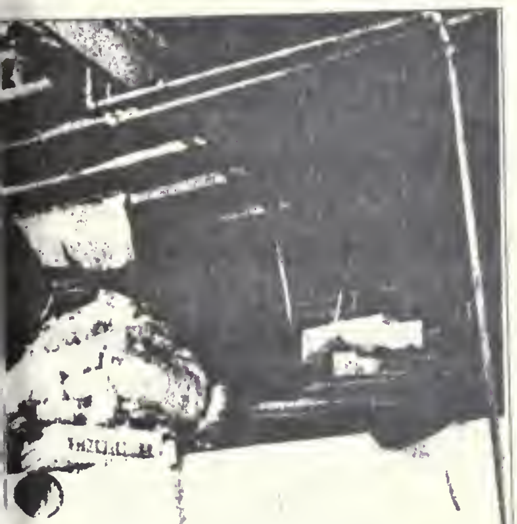


Where Litter Lights



What Litter Consists of

The Washington State Department of Ecology has conducted on-going litter control activities since 1972, measuring all types of litter in 13 different kinds of locations. The make-up of litter shown does not differ substantially from what it was in 1971, but of the 25% total for glass and metal, about 20% is made up of soft drink and beer containers, according to Washington state officials. It is estimated that private and public costs incurred in dealing with litter in the state exceed $18 million annually, or about $5 per person per year.



The flow of returnables usually starts out with hands across the checkstands (top photo, far left) and ends in the backroom where bottles rise in massive tiers, (center, far left). Because of the space squeeze, however, backrooms sometimes end up looking like battle fields (bottom, far left). Even tops of coolers are used for storage (bottom photo center). Open air corrals (left) are another answer to the problem but are not preferred because of pilferage and weather conditions.

BEER & SOFT DRINK RETAIL PRICES

COVERING:

263 Supermarkets in 13 States:
68 in 4 Deposit States
195 in 9 Non-Deposit Law States

Survey Conducted Week of 1/8/79

SUMMARY

In response to numerous statements regarding theoretical prices of beer and soft drinks under a deposit law system and the lack of hard facts of actual retail prices, the Can Manufacturers Institute undertook a survey of supermarket shelf prices of national and store brand beverages on January 8, 1979, in as many cities as could physically be covered by sales and plant personnel.

Additional stores were surveyed later in the week in more cities in order to provide expanded data in deposit law states and cities in more non-deposit law states.

This report shows the results of the survey and clearly establishes that consumers in deposit law states are paying much higher prices than their neighbors in non-deposit law states.

Can Manufacturers Institute
Washington, D.C.

SUPERMARKET RETAIL PRICE SURVEY
BEER & SOFT DRINKS
6 PACKS

WEEK OF 1/8/79

	Deposit Law States-Avg.	Non-Deposit Law States-Avg.	Price Difference
Beer-National Brands-12 oz. Cans	$2.15 + deposit	$1.93	+.22
Beer-National Brands-12 oz. Bottles	$2.16 + deposit	$1.90	+.26
Soft Drinks-National Brands-12 oz. Cans	$1.70 + deposit	$1.71	—
Soft Drinks-"Store Brands"-12 oz. Cans	$1.41 + deposit	$1.12	+.29
Soft Drinks-National Brands-16 oz. Bottles	$1.56 + deposit	$1.42	+.14

		Non-Deposit Neighbors		
	Deposit-Michigan	Wisconsin	Indiana	Ohio
Beer-National Brands-12 oz. Cans	$2.28 + deposit	$1.84	$1.97	$2.10
Beer-National Brands-12 oz. Bottles	$2.30 + deposit	N.A.	$1.97	$2.05
Soft Drinks-National Brands-12 oz. Cans	$1.90 + deposit	$1.55	$1.75	$1.80
Soft Drinks-"Store Brands"-12 oz. Cans	$1.37 + deposit	$1.00	N.A.	$1.05
Soft Drinks-National Brands-16 oz. Bottles	*$1.85 + deposit *Detroit only	$1.05 + dep.	$1.40 + dep.	$1.50 + dep.

		Non-Deposit Neighbors	
	Deposit-Oregon	California	Washington
Beer-National Brands-12 oz. Cans	$2.10 + deposit	$1.73	$2.05
Beer-National Brands-12 oz. Bottles	$2.11 + deposit	$1.73	$2.00
Soft Drinks-National Brands-12 oz. Cans	$1.85 + deposit	$1.79	$1.80
Soft Drinks-"Store Brands"-12 oz. Cans	$1.45 + deposit	$1.09	$1.28
Soft Drinks-National Brands-16 oz. Bottles	$1.56 + deposit	$1.44 + dep.	$1.52 + dep.

	Deposit		Non-Deposit Neighbors	
	Maine	Vermont	New Hampshire	Connecticut
Beer-National Brands-12 oz. Cans	$2.07 + dep.	$2.15 + dep.	$1.86	$1.97
Beer-National Brands-12 oz. Bottles	$2.07 + dep.	$2.15 + dep.	$1.76	$1.97
Soft Drinks-National Brands-12 oz. Cans	$1.56 + dep.	$1.50 + dep.	$1.55	$1.65
Soft Drinks-"Store Brands"-12 oz. Cans	N.A.	N.A.	$1.05	$1.01
Soft Drinks-National Brands-16 oz. Bottles	$1.56 + dep.	$1.33 + dep.	N.A.	$1.73

CANNED "PRIVATE BRAND" SOFT DRINKS

Deposits Raise Prices, Lower Availability

In many stores the lowest retail prices for soft drinks in single serving size containers are the canned "private" or "local" brands distributed through a "warehouse system." This is opposed to the "driver delivery system" used by most national brand soft drinks. The CMI price survey of 263 supermarkets showed that deposit laws tend to *lower the availability* and *raise the prices* of these products:

	Deposit States (4)	Non-Deposit States (9)
Average Price-Six Pack	1.41	1.12
Stores Offering	54%	71%

SURVEY RESULTS

LOWEST COST SOFT DRINKS AVAILABILITY DROPS PRICES RISE IN DEPOSIT STATES

"PRICE" BRAND AVAILABILITY

NON DEPOSIT STATES	# STORES	# WITH "PRICE" BRANDS	%	AVERAGE PRICE/6 pack
WISCONSIN	27	26	96	1.00
OHIO	27	15	56	1.05
ILLINOIS	23	16	70	1.45
INDIANA	11	2	11	N.A.
NEW HAMPSHIRE	14	8	57	1.05
CONNECTICUT	32	24	75	1.01
WASHINGTON	36	27	75	1.28
CALIFORNIA	25	21	84	1.09
IOWA		No Data		
AGGREGATE:	195	139	71.3	Avg: 1.12
DEPOSIT LAW STATES				
OREGON	34	27	79	1.45
VERMONT	9	0	0	—
MAINE	7	0	0	—
MICHIGAN	18	10	56	1.37
AGGREGATE:	68	37	54.4	Avg: 1.41

SUPERMARKET PRICE SURVEY
BEER & SOFT DRINKS
6 PACKS

WEEK OF JANUARY 8, 1979

	NON-DEPOSIT LAW STATES										DEPOSIT LAW STATES (Plus Deposit)				
	WISC.	IND.	OHIO	NEW HAMP.	CONN.	ILL.	IOWA	CALIF.	WASH.	AGGREGATE	MICH.	MAINE	VERMONT	OREGON	AGGREGATE
Beer-National Brands-12 oz. Cans	1.84	1.97	2.10	1.86	1.97	1.92	1.89	1.73	2.05	1.93	2.28	2.07	2.15	2.10	2.15
Beer-National Brands-12 oz. Bottles	N.A.	1.97	2.05	1.76	1.97	1.85	1.87	1.73	2.00	1.90	2.30	2.07	2.15	2.11	2.16
Beer Excise Tax/6 Pack	3.75¢	5.25¢	9¢	8.5¢	4.75¢	4¢	8¢	2.25¢	2.75¢	5.36¢	11.5¢	14¢	14¢	4.75¢	11.06¢
Soft Drinks-National Brands-12 oz. Cans	1.55	1.75	1.80	1.55	1.65	1.83	1.63	1.79	1.80	1.71	1.90	1.56	1.50	1.85	1.70
Soft Drinks-"Store Brands"-12 oz. Cans	1.00	N.A.	1.05	1.05	1.01	1.45	No Data	1.35	1.28	1.12	1.37	N.A.	N.A.	1.45	1.41
Soft Drinks-National Brands-16 oz. Bottles	1.05 + dep.	1.40 + dep.	1.50 + dep.	N.A.	1.73	1.31 + dep.	1.40 + dep.	1.44 + dep.	1.55 + dep.	1.42	*1.85 *Detroit only	1.56	1.33	1.56	1.56

NOTES: Oregon Beer Bottles–Millers: Non-Refillable 12 oz., 5¢ Deposit;
Budweiser, Schlitz: Certified Refillable 11 oz., 2¢ deposit
Michigan Beer Bottles–Miller: Non-Refillable 12 oz., 10¢ Deposit;
Budweiser, Schlitz, Stroh: Select Type Certified Refillable, 5¢ Deposit
Vermont Beer Bottles–All Labels: Special State Certified Refillable 6 Times, 5¢ Deposit
Maine Beer Bottles–All Labels: Non-Refillable, 5¢ Deposit
Illinois Beer Excise Tax: Cook County–6.25¢/6 Pack; Balance of State 4¢

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TO: Study Committee on Containers

FROM: Edmund F. Sheehy, Jr., Counsel for Montana Food Distributors Association

RE: Position Paper on Mandatory Deposit Legislation

DATE: October 4, 1979

The Montana State Food Distributors Association (MSFDA) is an organization consisting of most of the small, independent grocers in the State of Montana. These small independent grocers are the people who will have to bear the cost, as did their counterparts in Oregon, Vermont and Michigan, of the enactment of a mandatory deposit law in Montana. MSFDA believes that the costs to the grocer under a mandatory deposit law far exceed the advantages of such law.

MSFDA recognizes that this entire nation, including Montana, is facing a problem of litter destroying the picturesque beauty of our country. Every state, and the nation as a whole, is struggling with coming up with a viable method of controlling litter. A method that will distribute the burdens and cost of control equitably. While proponents of mandatory deposit legislation can point to statistics that show that such legislation has reduced the amount of roadside litter, the amount of reduction is insignificant in light of the burdens and costs imposed on grocers. MSFDA believes that the grocers in Montana should not have to bear all of the burdens and costs of correcting a bad habit of almost all Montanans, and almost all Americans, of littering our streets and highways.

In this position paper, MSFDA intends to identify the costs and burdens imposed on grocers under mandatory deposit legislation, then MSFDA intends to show that these costs and burdens are not justified by the insignificant amount of litter reduction produced by mandatory deposit legislation. Finally, MSFDA will suggest the adoption of a method of litter control that reduces litter and spreads out the cost of litter control equitably and fairly.

In 1977, Progressive Grocer, conducted a survey of super market owners and managers in Oregon and Vermont, both states where mandatory deposit laws are on the books. the grocers identified five major problems with such legislation. They are, ranked in terms of seriousness,

1. Labor Costs: A super market operator can expect in the summer months to spend $258.00 a week to handle returnables and a smaller store $169.00, not including fringes. Half of the stores created a new position: bottle boy or container clerk.

2. Cluttered front of store: Three out of four stores accept returnables at the front end yet the median amount of space provided there is 32 square feet.

3. Insufficient backroom space: A median of 250 square feet of backroom space is devoted to returnables. One quarter of the retailers responding to the survey find it necessary to augument this with 200 square feet of space outside the store.

4. Sanitation: Clean up and pick up is more intense and expensive under forced deposit conditions. Unwashed containers smell, partially filled containers spill, bottles break, and some operators find it necessary to increase the frequency of exterminator services.

5. Decrease in beverage business: To reduce handling expense most retailers have cut back on the number and variety of beverage items. Cans and non-refillable items especially have suffered and private label has declined.

While proponents of mandatory deposit legislation may scoff at these problems, to the men and women who operate small, independent groceries, these are serious problems indeed. Progressive Grocer, based on their survey in Oregon and Vermont, determined that labor costs in those states for small stores increased $8,788.00 per year with mandatory deposit legislation. This $8,788.00 alone may be the difference between a small grocer remaining in business and having his expenses exceed his income, thereby, forcing him out of business.

Grocers in Oregon are extremely concerned about the sanitation problem with mandatory deposit legislation. In a survey conducted by C. Jane Wyatt, Department of Food Science and Technology, Oregon State University, appearing in Journal of Food Protection Vol. 42, No. 7, July, 1979, p. 559:

"A question was designed to give

> respondents an opportunity to comment freely on factors in their opinion that create insanitary conditions in a food store...
> ..."[T]he factor consistently discussed by respondents has to do with the insanitary conditions created by return of soft drink and beer containers. Handling of these containers by clerks and holding them in their stores until picked up by distributors created the most serious public health hazard in the opinion of food retailers."

MSFDA believes that the public health hazard created by the sanitation problems with mandatory deposit legislation may be more serious than any public health problem with litter along a road. Having ants and roaches in litter along a highway is not a great problem, but to have ants and roaches coming into a grocery store in a beverage container can be a very serious problem.

In terms of control of litter, the proponents of mandatory deposit legislation cite a 47% decrease by cubic volume of highway litter in Oregon. While on paper such a percentage figure looks nice, it is misleading. It must be remembered that this percentage figure is only highway litter. It is not all litter. Highway litter does not include parks, campgrounds, city streets, county roads, etc. This percentage figure is a reduction of less than half of the roadside litter. As pointed out in Progressive Grocer, October, 1977, even with this percentage reduction, the Oregon State Highway Division in 1975/1976 spent $633,353.00 for roadway and right-of-way maintenance and litter collection. At the same time, Oregon super markets are spending four times the Division's amount in added labor costs alone to solve the litter scourge.

Another point on mandatory deposit legislation should be considered. Such a law is inflationary in terms of labor costs and prices for beverages. It was this concern over the inflationary aspects of mandatory deposit legislation that caused the Resource Conservation Committee, a cabinet level panel, to advise President Carter against recommending national mandatory beverage container deposit legislation to Congress. This recommendation of the Committee was in their final report submitted to the President on July 13, 1979.

A viable alternative to mandatory deposit legislation, in the view of MSFDA, would be a Model Litter Control Act, such an Act has been enacted in Missouri. This type of Act is designed to control litter not just on the highways, but city streets, parks, etc. This type of Act spreads the costs of adopting a method of litter control on the manufacturers, wholesalers and retailers of any product reasonably related to the litter problem. The cost under such an Act is not borne by the grocer alone as is the case with mandatory deposit legislation. The costs are borne by all of those who contribute to litter and who litter.

In connection with a Model Litter Control Act, other steps can be taken to help reduce litter in Montana. Such steps could include: placement of more litter barrels on highways and on city streets; increasing the fines for littering on the highways and streets; encouragement of recycling centers; encouragement of a BIRP program in Montana, etc. Mandatory deposit legislation is not the only method of controlling litter and most certainly, in terms of its effect on grocers, not the best method.

The bottom line with regard to a mandatory deposit law is this: while such a law may reduce litter on the highway, it most certainly will reduce the number of small grocers who sell beverages and reduce the number of small grocers in Montana altogether.

Public Affairs Report
A review of governmental issues and actions of interest to Reynolds Metals Company

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MONTANA LEGISLATIVE COUNCIL

Where Reynolds Aluminum Stands
On Mandatory Container Deposit Laws

Reynolds Metals Company is opposed to the passage of laws requiring deposits on beer and soft drink containers because we do not think they offer the wisest approach to attacking the problems of litter and solid waste. There are more constructive solutions.

Reynolds, the nation's leading manufacturer and recycler of all-aluminum beverage cans, lost 90 per cent of its can sales in Oregon under that state's deposit law, but the company's opposition extends beyond the risk to this product. We believe that the adverse economic costs of deposit legislation outweigh the benefits of litter and solid waste reduction that can be achieved under such laws.

Mandatory deposit laws create burdens for brewers and soft drink manufacturers, for their distributors and for grocers and other retailers, thus increasing costs that would have to be passed on to the inconvenienced consumer in the form of higher prices.

Where deposit laws are enacted, Reynolds will purchase the used aluminum cans being returned, working with retailers and distributors to ease the burdens of such a system. But to reduce litter and to conse energy and resources we favor more positive programs to which Reynolds is already strongly committed:

-- Our own aluminum recycling program which is growing dramaticall Reynolds recycled the equivalent of about 55 percent of the aluminum cans it put in the marketplace in 1978, paying the public for their return, and our collections continue to increase.

-- The Clean Community System Program which attacks the root of the litter problem -- human behavior -- in a systematic way and which is being implemented nationally. Communities across the country can now apply for certification and participation as CCS cities.

-- State Model Litter Programs which concentrate on the reduction of all litter, not just bottles and cans, through educational, informational and community action efforts that seek to change people's litter habits and reinforce the cleanliness ethic.

-- Resource recovery systems dealing with the total solid waste stream. Reynolds has a department established to work with such system in developing technology and in negotiating for the purchase of aluminum recovered. The company already has contracts to buy the aluminum reclaimed in such plants.

(over)

It should be noted that container deposit laws aren't concerned with 95 to 97 percent of solid waste or 70 to 80 percent of litter. Oregon, for example, is spending as much or more today to control litter and handle solid waste as it did before its law was enacted.

In terms of energy use, even if deposit laws would produce a totally refillable system and work perfectly (which they don't), the energy savings to the country would be only a fraction of one percent of total use -- and that after all the conversion has taken place.

Because of their light weight and recyclability, aluminum cans offer energy advantages, taking pressure off critical petroleum resources. Twice as much beverage can be trucked per gallon of gas in aluminum cans as in the heavier, refillable containers. And when you recycle scrap aluminum into new metal, you save 95 percent of the energy it takes to make aluminum from virgin ores.

Reynolds Aluminum Recycling

Years	Number of Cans Recycled (1)	Percentage of Cans Produced (2)	Money Paid to Public (3)
1970	100 million	5%	$ 420,000
1971	415 million	13%	$ 1.8 million
1972	813 million	22%	$ 3.6 million
1973	1.1 billion	26%	$ 4.6 million
1974	1.0 billion	22%	$ 5.4 million
1975	1.8 billion	40%	$12.9 million
1976	2.4 billion	51%	$16.7 million
1977	2.9 billion	57%	$22.9 million
1978	3.2 billion	55%	$25.4 million
Totals	13.7 billion		$93.3 million

(1) Does not include other aluminum products also recycled.
(2) Cans recycled by Reynolds as percentage of cans manufactured by Reynolds in that particular year.
(3) Reflects price increases from 10 cents a pound to 12 to 15 to 17 cents for the used cans.

February, 1979

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14 September 1979

To: The Montana Joint Interim Legislative Committee
on Containers (H.J.R. 56)

POSITION PAPER ON MANDATORY CONTAINER DEPOSITS

At this Committee's organizational meeting on July 13 I expressed some apprehension about preparing a "Position Paper" for the Committee without knowing precisely what the provisions of any contemplated container-deposit legislation will be.

Various beverage container bills have come before the Montana Legislature in every session for almost two decades. I think it may be said no two have been exactly alike. This is understandable because the legislative arena is fluid and the personnel of both the legislature and the "third house" change somewhat from session to session. Naturally, therefore, different approaches to the subject appear from time to time.

Proponents of 1979's House Bill No. 2 have themselves already publicly asserted the initiative on mandatory container deposits which they propose to have on the 1980 general election ballot will be substantially different from anything thus far advocated. Only they know how different, of course, and in what respect those differences may bear on the economics of the brewing industry, the consumption of energy and natural resources, and the purchasing power of the public.

Proponents of restrictive packaging legislation do have a familiar list of benefits they claim will accrue under their proposals: reduced litter; reduced solid waste collection and disposal costs; and reduced energy and raw materials consumption. These utopian claims, however, do not fare well in the light of the economics of the malt beverage industry.

The first claimed benefit of such restrictive legislation is litter reduction. Statistics are brought forth endlessly to demonstrate the reduction in litter in Oregon, the first state to pass such legislation; but very little has been said about the cost-effectiveness of litter reduction. In the first year this legislation was on the books, Oregon consumers paid an additional $9 million in the form of higher malt beverage prices, i. e., the volume and package mix consumed in 1973 cost the Oregon consumer $9 million more in 1973 prices than it would have in 1972 prices. This is a steep price to pay for litter reduction, especially when compared to the small cost of a few extra litter pick-up crews which could have achieved the same results.

Solid waste costs occur in two categories: collection costs and disposal costs. Because malt beverage cans and non-returnable bottles account for a relatively small portion of solid waste and because every solid waste collection system builds in slack to accommodate fluctuations in collection, it is highly doubtful that restrictive legislation would effect any savings in solid waste collection at all. There would be some savings in solid waste disposal costs such as landfill proportional to the percentage of solid waste that convenience packaging represents. However, these savings do not begin to approach the amount of the price increases which occured in Oregon. It is a very cost-inefficient solution.

Assumed calculations of energy savings suffer on several counts.

Most importantly, they are calculated using fragmentary information from an incomplete systems analysis. Absent an energy input-output matrix, this is the only type of calculation that can be performed; but it is dangerous to predicate policy on such poor information. Specifically, the present malt beverage production/distribution system is a low consumer of energy per dollar of consumer spending relative to other goods and services. Tampering with this system could lead to unexpected changes in patterns of energy consumption. For example, the price increases in malt beverages induced by restrictive packaging legislation tend to reduce the demand for malt beverages. Money not spent on malt beverages is spent on other consumption items, which on the average are likely to require more energy to produce and distribute than the malt beverages not purchased. Total energy consumption thus increases. Since malt beverages are less energy-intense than the average consumption item, this outcome is at least as probable as a reduction in energy consumption.

Secondly, calculations of energy savings are crucially dependent upon certain high return rates for returnable bottles being reached. Proponents of such legislation generally estimate that a returnable bottle will make 10 - 15 trips and base their calculations on that. For evidence, they point to isolated high return rates; Research Triangle Institute estimated a current return rate of 93 percent in 1973. However, they failed to note that approximately 85 percent of all returnable bottles sold are sold in the captive on-premise market, where return rates approach 98 percent. Simple algebra indicates that the corresponding return rate for the remaining 15 percent, the relevant off-premise market of the returnable bottles, is 65.5 percent. This is equivalent to approximately 2.9 trips per bottle, far below the 10 - 15 commonly estimated. Under a returnables-only law, the lower rate of return of the off-premise sector would dominate the higher return rate of the toward banning the use of metal containers. Proponents often espouse recycling of metal, with alleged resulting savings in energy, as their goal in such cases. That was the alleged intention of House Bill No. 2 in the 1979 Montana Legislature.

But significant and serious economic and societal problems usually arise, as were readily perceived when House Bill No. 2 was analyzed thoroughly. What can reasonably be expected to be the rate of return of containers carrying a 5¢ or 10¢ redemption value? Will the quantity of unredeemed containers be of such magnitude that it will represent an unearned financial windfall to manufacturers or distributors or retailers? Will the quantity of unredeemed containers in effect constitute an unwarranted and unconscionable levy on all consumers?

Those questions cannot be merely dismissed.

In Montana approximately 450,000,000 beverage containers are marketed annually. Even the most visionary proponents of container-deposit legislation do not expect 100% redemption. Highly optomistic proponents dream of 90% redemption. Those of somewhat more practical outlook - but still perhaps unduly optomistic - set their sights at 80% redemption.

If a 10¢ deposit should ever be mandated the above figures indicated that, ideally, at least 45,000,000 containers and, more likely, 90,000,000 containers would disappear from the deposit-redemption cycle. Which means at least $4.5 million - but more likely $9 million - of Montana consumers' expendable income would be siphoned off in the container-deposit cause!

This writer submits such a waste is indefensible.

The deposits which are never claimed will enrich someone involved in the complicated chain of deposits and redemption.

much smaller on-premise sector.

Finally, the energy savings claims fail to specify what kinds of energy will be saved. Since energy derived from petroleum and natural gas is scarce, while energy derived from coal is plentiful, any measure that conserves the former resources is more desirable than a measure that conserves the latter. A 10-trip returnable bottle conserves mostly coal and some natural gas. It uses more petroleum than a steel can. In fact, returnable bottles always consume more petroleum than steel cans, partially because of the petroleum consumed in returning them through the chain of distribution from consumer to retailer to wholesaler to brewer.

The arguments of saved resources are parochial, inadequate and expensive. They are parochial because they only consider one form of raw material consumption, namely malt beverage cans and nonreturnable bottles. Restrictive packaging legislation completely ignores all other forms of raw material consumption and disposal. They are inadequate because they fail completely to deal with other sizable drains on natural resources. They are expensive because restrictive packaging legislation costs considerably more (while accomplishing considerably less) than a comprehensive strategy of resource recovery. An EPA Report and brewing industry estimates made in 1972 indicated source reduction through returnable bottles making 10 trips would have conserved 6.2 million tons of aluminum, iron and glass for an investment of $5 billion. Resource recovery would have conserved 13.3 million tons of aluminum, iron and glass for an investment of $3.8 billion. Once a system of resource recovery is adopted, a returnable bottle system's marginal contribution drops to less than 2.6 million tons of materials, still for the same $5 billion investment. Resource recovery is a clearly preferable strategy to restrictive packaging legislation.

Of course, not all container-deposit legislation is directed

The manufacturer or bottler?

The distributor?

The retailer?

The recycler?

Obviously not the consumer!

Montana beer wholesalers and recyclers assert gratifying results are being achieved in their continuing and increasing efforts to recycle beer containers. They indicate about 45% of aluminum beer containers and about 25% of steel beer containers are now being recovered. Although glass beer containers probably comprise no more than 15 or 20% of the beer containers merchandised in this state, recyclers believe about 38 to 40% of those glass containers are presently being re-used.

The markedly significant feature about what is happening in Montana is that private industry is achieving such impressive retrieval of solid waste without cost to the consumer. In fact the consumer is realizing a small profit from his or her participation in the recycling operation.

The proponents of mandatory container deposits do not look beyond the theory of their proposal. Theirs is a cause, albeit sincere and dedicated, which ignores its consequences. It is therefore advocacy without a conception of its economic effect on industry and the consumer.

There is a fundamental philosophical choice to be made in evaluating the wisdom of legislation which would require beverage containers to carry a returnable deposit. It is whether government should intervene to prescribe a single, inflexible system of litter control (at considerable net cost to the consumer and with alleged energy savings of doubtful real effect) or whether private initiative should be encouraged to continue to act without governmental intervention.

Respectively submitted,

Alfred F. Dougherty

ALFRED F. DOUGHERTY
Montana Counsel for
United States Brewers Association

APPENDIX D*

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*Appendix D contains rebuttals to Position papers submitted to the Study Committee on Containers. Only deposit proponents submitted written rebuttals.

REBUTTAL TO THE TESTIMONY OF: U.S. Brewers Association (Mr. Alfred Dougherty)
Montana Beer & Wine Wholesalers' Assoc. (Mr. Roger Tippy)
Buttrey Food Stores (Mr. John F. Lynch)
Reynolds Metals Company

BY: Montanans for Deposit Legislation

TO: the Interim Committee of the Montana Legislature on Food and Beverage Containers
6 October 1979

During the last session, Montanans for Deposit Legislation supported HJR 56 in the hope that this interim study would resolve the "broad disagreements" surrounding the container issue. The only way to resolve such disagreements is for each side (in the words of one lobbyist opponent of deposit legislation) to "lay all their cards on the table."

We consequently prepared a detailed report outlining all of our assumptions, explaining each figure and calculation, and supplying both specific examples and over 60 references and studies to support our position.

Our opponents' testimony, almost without exception, completely fails to detail assumptions, methodology, and source material for facts. We have no way of knowing if their undocumented assertions are true or properly represented, nor what their figures really refer to. Our side has laid its cards on the table, but our opponents continue to play from a concealed hand.

We continue to believe this committee can arrive at the facts. Following is our point-by-point rebuttal to those issues our opponents raise which are particularly dubious:

ISSUE: THE ECONOMICS OF DEPOSIT LEGISLATION

(1) CLAIM: "In the first year this (deposit) legislation was on the books, Oregon consumers paid an additional $9 million more in the form of higher malt beverage prices. . .in 1973 prices that (they) would have in 1972 prices" (Mr. Dougherty).

RESPONSE: Just about everything everywhere cost more in 1973 than it did in 1972. The $9 million increase Mr. Dougherty cites for Oregon beer prices amounts to an increase of 7% -- close to the national average, identical to neighboring non-deposit Washington's 7% increase that same year, and considerably less than the $10 million increase in Montana beer prices between 1978 and 1979. The Applied Decisions Systems study, widely cited as the industry view of Oregon's deposit law, concluded:

> "Increases in retail beer prices have coincided with the implementation of the minimum deposit law, but the brewers have indicated that the law had little or nothing to do with those increases."
>
> "The average price per case (of soft drinks) paid by consumers in Oregon has decreased 5% since the law."
>
> — Applied Decisions Systems, "Study of the Effectiveness and Impact of the Oregon Minimum Deposit Law," 1974, p. II-35

(2) CLAIM: "Increase labor without increasing productivity, and you have to raise prices. That is such basic economics that wholesalers are constantly astonished to hear deposit boosters saying they won't raise prices" (Mr. Tippy).

RESPONSE: Apparently, wholesalers were so astonished they forgot to raise prices in Oregon, Vermont, and Maine. As for basic economics, labor (and capital) productivity applies to two basic sectors -- manufacturing/bottling and wholesaling/ retailing -- not just one. Uniform container deposit laws increase the productivity of both labor and plant at the manufacturing/bottling stage (by packaging the same amount of beverage in fewer and cheaper containers) more than they decrease the productivity of labor and equipment at the wholesaler/retailer stage. Bottlers and canners re-fill and recycle the same container over and over again rather than purchasing costly new containers. That's why deposit laws don't raise prices.

(3) CLAIM: "Increased wholesaling labor alone would amount to $1.5 million annually. The retailers' and soft drink distributors' labor costs would jump about as much" (Mr. Tippy).

RESPONSE: Mr. Tippy doesn't supply us with any documentation for his estimate. However, assume that the $4.5 million labor cost he estimates for the three sectors is accurate. The only breakdown of these costs we've received from Mr. Tippy (an August 8 memo entitled, "Wholesaler costs under deposit laws") shows his judgment that labor costs are about 60% of the total cost of complying with a deposit law. Dividing $4.5 million by 60% gives a total wholesale/retail cost of $7.5 million, for sales of 21 million cases of beer and soft drinks annually -- about 37¢ per case.

While Mr. Tippy apportions the costs a little differently than we do, his conclusions regarding the overall cost of deposit legislation are remarkably similar to our estimate of 40-45¢ per case in total costs -- even less, in fact.

At the risk of repeating ourselves, these costs will be offset by revenues from recycling aluminum (20¢/case) or decreased bottling costs (30¢ to over $1.00 per case), and from unclaimed deposits (12¢ to 24¢ per case) -- and additionally from decreased solid waste and litter management costs. Citing both costs and benefits indicates a deposit law will provide economic benefits for Montana.

(4) CLAIM: "Probably the hardest hit by the deposit law is the supermarket . . .(In Oregon) the number of hours required to sort empties averages forty hours per week" (Mr. Lynch, Buttrey Food Stores).

RESPONSE: This cost estimate substantiates our contention that the cost of handling returned containers at the retail level is small. A supermarket such as Buttrey's handles about 800 cases per week with 40 hours of labor time, which equals a labor cost of less than 1¢ per container. Note that Buttrey's estimate comes from a state (Oregon) whose deposit law provides no incentive for redemption centers and thus routes all containers through grocery stores, resulting in maximum retail costs.

(5) CLAIM: "A deposit law places a severe burden on a Ma and Pa store or a convenience store" (Mr. Lynch).

RESPONSE: John Piacentini, owner of a chain of 50 small convenience grocery stores in Oregon, recently wrote:

> Our stores are small. We have very little storage space and we sell as much beer and soft drinks as many large supermarkets. We also buy back a lot of empty containers, over 95% of what we sell. Storage space has not been a major problem for our stores. It has been crowded at times, but we can live with it. . .We have not had to hire all the extra help as industry propoganda would have you believe. . .Since the bottle bill became law in Oregon, my company has built over 40 new stores, and we are still using the same floor plan as before the bottle bill."

A Maine grocer similarly called his state's deposit law "the best friend small Maine stores ever had" because it brings customers into the store (Portland Press-Herald, July 24, 1978). A poll by Progressive Grocer (October 1977) found that while half the grocers surveyed in Oregon and Vermont had suggestions for minor changes in their state's deposit law, 70% would not favor repeal.

(6) CLAIM: "At least $4.5 million — but more likely $9 million -- of Montana's consumers' expendable income would be siphoned off in the container deposit cause! . . . Will the quantity of unredeemed containers in effect constitute an unwarranted and unconscionable levy on all consumers?" (Mr. Dougherty).

RESPONSE: This cost estimate is apparently based on Mr. Dougherty's "80%" return rate, which would be far lower than the 93-97% reported in states with deposit laws, but so be it. The fact is that a refundable deposit, which 75% of Montana's consumers have stated they support (according to the January 1979 Republican Party poll), in no way resembles a levy. Nor can the cost of unredeemed containers fall to "all consumers," but only to those consumers who litter, waste, or for whatever reason don't return their containers and claim their refund. The current hefty state tab for controlling litter and waste is what really constitutes an "unconscionable levy" on all Montanans. Finally, unclaimed deposits aren't "siphoned off" like an embezzlement into a Swiss bank account; they go toward purchasing new containers to replace the 5% which aren't returned.

ISSUE: PROJECTED RETURN RATE FOR BEVERAGE CONTAINERS

(1) CLAIM: "Approximately 85 percent of all returnable bottles sold are sold in the captive on-premise market" (Mr. Dougherty).

RESPONSE: Apparently Mr. Dougherty is confusing beer sales with total beverage sales. The vast majority of returnable bottles sold are soft drink, which are sold through off-premise markets (groceries). In Montana, for example, 84 million soft drink returnable bottles are sold each year through grocery stores (95% of which are returned), while only 11 million returnable beer bottles are sold through on-premise markets (taverns). This distinction is important because it forms the foundation for Mr. Dougherty's next contention.

(2) CLAIM: "Simple algebra indicates that the corresponding return rate for the remaining 15%, the relevant off-premise market of the returnable bottles, is 65.5%. . .Under a returnables-only law, the lower rate of return of the off-premise sector would dominate" (Mr. Dougherty).

RESPONSE: Although Mr. Dougherty's line of reasoning is clear, he didn't have to go to all the trouble. The purchase records of bottlers serving deposit states show container return rates ranging from 93% in Oregon to 97% in Vermont -- with more than 90% of the containers returned through off-premise markets.

ISSUE: ENERGY SAVINGS UNDER A DEPOSIT LAW

(1) CLAIM: "Assumed energy savings (under a deposit law). . .are calculated using fragmentary information from an incomplete systems analysis" (Mr. Dougherty).

RESPONSE: Mr. Dougherty doesn't explain what he means, nor the "energy input-output matrix" he would like to see used instead. He cites no examples or studies to buttress his criticism. Both the Office of Technology Assessment and the Resource Conservation Committee (references 2 and 9 in our report) cite a number of different net energy studies, including one by the Wharton School for the U.S. Brewers Association. All analyze energy inputs and outputs of a proposed deposit system. All the studies conclude implementation of a deposit system would save substantial amounts of energy -- the Wharton study, in fact, finds that energy is saved even if a refillable bottle is returned and re-filled only three times (14-30 refills per bottle is reported in deposit states).

(2) CLAIM: "The increase in distributor fuel consumption in states adopting the forced deposit ranges from 30% to 100% more fuel" (Mr. Tippy).

RESPONSE: This contention is the key to several critical energy and economic arguments made by Mr. Tippy, yet he provides not a scrap of evidence to support it -- only the assertion itself. Therefore, we can only assume that Mr. Tippy is referring to one study by Mr. Ken McCloud, a Maine beer distributor (cited to us verbally by Mr. Tippy), and perhaps to another statement by Coca-Cola's Washington and Oregon distributors. We talked with Mr. McCloud by telephone, and he stated that his study had nothing to do with gasoline consumption (he also told us Maine's beer distributors, by more than a 2-1 margin, support Maine's deposit law). Coca-Cola could provide us with no information on their statement, only their assertion that it takes "exactly twice as much gasoline per packaged case delivered" in Oregon as in Washington. No effort was apparently made to determine if that difference is due to Oregon's deposit law or to another interesting factor which shows up in the following table:

STATE	GASOLINE CONSUMPTION/1000 CASES	POPULATION DENSITY
Washington	47.4 gallons*	53/square mile
Oregon	94.9 gallons*	22/square mile
Montana	200.+ gallons**	5/square mile

*from Coca-Cola statement

**calculated from Mr. Tippy's figures, which show Montana beer distributors use 1.06 million gallons of fuel to deliver 9.1 million cases of beer, or 116 gallons per 1,000 cases. The Oregon and Washington figures are for soft drink distribution, so this Montana beer figure has to be adjusted to reflect (a) the size of Montana soft drink distribution areas, which are 2½ times larger than beer distribution areas, and (b) the soft drink package mix of 40% bottles, which require twice as much trucking space as the cans which dominate beer sales.

All the Coca-Cola study shows is that less densely-populated states consume more gasoline than denser states. Since Oregon's gasoline consumption bears the same relationship to its population as does Washington's (density X gallons), the Coca-Cola statement appears to show that deposit laws result in no significant increase in distributors' gasoline use.

(3) CLAIM: "You spend 900,000 gallons of fuel in Montana in order to save the equivalent of 900,000 gallons at aluminum plants in some other state" (Mr. Tippy).

RESPONSE: Mr. Tippy's analysis here combines two methods: (a) an assumed 47% increase in fuel consumption under a deposit law, which, as noted, he has neither explained nor documented, and (b) an examination only of the aluminum can (60% of the throwaway container sales), and only electricity savings (50% of the energy used to manufacture and deliver canned beverages). Thus Mr. Tippy focuses on only 30% of the potential energy savings of a deposit system, which is why his estimate of savings is extraordinarily low. Refillable bottles, which use 60% less energy than throwaway bottles; recycled steel cans, which use 30% less energy; and recycled aluminum cans, which use 60% less total energy; than throwaway containers should all be figured in. By focusing on only a fraction of a fraction, Mr. Tippy seriously understates the energy conservation potential of uniform deposits.

Second, Mr. Tippy ignores the energy consumption of a recycling system, which now depends on customer car delivery of bottles and cans to often widely-scattered recycling centers and distributor warehouses, and on an entirely separate trucking system. Per ton-mile, customer cars are some thirty times less efficient than distributor trucks. In both Arizona and Washington, recyclers use fleets of trailer-trucks to haul recyclables instead of the existing distribution system, while a deposit system usually uses deadhead space in existing routes. There is more reason to conclude a recycling system would consume hundreds of thousands of extra gallons of gasoline, though it would still conserve energy in the long run. In any case, Mr. Tippy's conclusion is dependent on greatly overstating the energy use of a deposit system while at the same time ignoring 70% of the system's energy savings and 100% of the energy use of his preferred recycling system.

(4) CLAIM: "A 10-trip returnable bottle uses more petroleum than a steel can" (Mr. Dougherty).

RESPONSE: Like Mr. Tippy's previous energy analysis, this example is the result of piling fractions upon fractions. Mr. Dougherty has picked the only one of four types of throwaways, and the only one of three forms of basic energy, which is even slightly conserved by a throwaway container over a refillable one. A 10-trip refillable bottle conserves all three forms of energy (petroleum, natural gas, and electricity) when compared to a throwaway glass bottle, plastic bottle, or aluminum can. It also uses less electricity and natural gas than a steel can. Either a 20-trip 12-oz refillable bottle or a 10-trip 16-oz refillable bottle also uses less petroleum than any size steel can (Reference 9, pp. 199-200, in our report). Finally, recycling of any kind of container except a glass throwaway bottle (which should be refilled) conserves all three forms of energy when compared to non-recycled containers. Deposit systems recycle or refill containers at a 90% clip or better. That is why all studies done on the subject (including one by the U.S. Brewers Association) conclude that a deposit system would save substantial amounts of electricity, natural gas, and petroluem compared to today's throwaway system. That may also be why deposit opponents have to go to great lengths to find a single, isolated example or step in which the throwaway uses less of one energy form (Mr. Dougherty's example above postulates a system consisting 100% of refillable bottles and 0% cans, which no one advocates anyway).

(5) CLAIM: "Recycling does not save much if any energy with beer bottles or steel cans" (Mr. Tippy).

RESPONSE: True and false. Recycling glass saves little energy. That's why it's important to refill bottles whole (which a deposit system provides incentives to do) instead of merely recycle the glass (which the current throwaway system attempts to do because throwaway bottles are too fragile to refill). Now that a refillable bottle which weighs no more than a throwaway bottle has been developed, there's no longer much reason to market throwaway bottles at all. Recycling steel cans saves about 30% of the energy used in their manufacture and delivery. In both cases, transportation is an insignificant energy cost.

ISSUE: LITTER AND SOLID WASTE

(1) CLAIM: "The Oregon Deposit Law was successful in reducing the litter problem by just 10%. This was compared with Washington's Comprehensive Litter Control Law which reduced overall litter by 60%" (Mr. Lynch).

RESPONSE: As noted in our position paper, this contention is still being made despite the fact that it's erroneous. But to repeat: The 60% reduction in Washington litter never occurred, based as it was on an inconsistent, unscientific projection which has been disowned by its own sponsor, the Washington Department of Ecology. The Department now claims only a 15% reduction in four years. The study Mr. Lynch cites for Oregon (by the Oregon Department of Highways, cited by Applied Decisions Systems) actually found a 21% volume reduction in Oregon litter in the first few months of the deposit law and a 47% reduction the second year. Thus the official figures show a volume reduction of 47% in Oregon litter and 15% in Washington litter.

(2) CLAIM: "When the price is right at the recycling center, there is less beer and can litter" (Mr. Tippy).

RESPONSE: This seems to be true to some extent, but the only study we've seen on the subject shows just as many aluminum cans littered in Washington as usual, despite its recycling program, which recovers a higher percentage of aluminum cans than Montana's. Unfortunately, litterers don't seem to be the kind of people who recycle, and volunteer litter crews are too few to police the state.

(3) CLAIM: "A deposit law would represent a savings of (only) $90,000 a year for all the landfills in the state. . .Collection costs of $17-20/ton should not be figured in, because many suburban and rural residents do not have trash collection service" (Mr. Tippy).

RESPONSE: First, Mr. Tippy under-projects the tonnage of solid waste beverage containers represent, primarily because he assumes about 20% of the throwaway beer bottles are currently recycled (the evidence indicates more like 3% are recycled). Second, he under-states the amount of containers which would be recycled or refilled under a deposit law -- Mr. Tippy projects 67%, while deposit state experience indicates 90% or more. Third, Mr. Tippy ignores 70% of the costs of solid waste management (collection costs) and focuses only on 30% (landfill costs). His logic here is that not all Montanan use a collection service. However, the Strategy Report indicates rural residents generat only 16% of the solid waste in Montana, so it seems that Mr. Tippy should have allocated collection costs to at least three quarters of Montana's residents -- not omitted them entirely. Rural residents who deliver garbage by car to landfills are incurring even greater costs than they would under a collection service. Finally, Montana is moving toward a system of centralized landfills, so collection costs will be an even more direct cost in the future. Collecting and disposing of beverage container waste annually costs Montanans upwards of half a million dollars.

(4) CLAIM: "Oregon. . .is spending as much or more today to control litter and handle solid waste as it did before its law was enacted" (Reynolds Metals Company).

RESPONSE: As with everything else, litter and solid waste management costs have risen sharply since 1971. It's not therefore surprising that Oregon is spending more in 1979. However, Oregon spends less per-capita to control litter than does Washington, and less than it would if its deposit law didn't annually work to keep 50,000 tons of beverage containers out of its landfills and off its highways.

ISSUE: ALTERNATIVES TO DEPOSIT LAWS

(1) CLAIM: "If voluntary recycling continues its present growth rate in Montana, in four or five more years the problems decried by the pro-deposit groups will have become very small indeed" (Mr. Tippy).

RESPONSE: Since 1970, the percentage of beverage containers thrown out in Montana has risen. The recovery and recycling of aluminum cans appears to have grown by leaps and bounds, but this is an illusion -- since 1971, aluminum can sales in Montana have jumped 1800% from 15 million to 260 million. The percentage recovered versus the percentage thrown away hasn't changed that much. Fewer bottles are refilled today than in 1970. At best, the current recycling system is recovering only 28% of the throwaway containers sold, a percentage which will decline if steel and plastic containers gain larger shares of the market. Under a deposit system, 90-95% are recovered. It's hard to see how 28% can rise to 90% in four or five years, or even twenty, and Mr. Tippy doesn't supply us with any evidence to back up his claim.

(2) CLAIM: "Montana beer wholesalers and recyclers assert gratifying results are being achieved in their continuing and increasing effort to recycle beer containers. . . 45% of the aluminum containers and about 25% of the steel beer containers are now being recovered (and). . .about 38% to 40% of those glass containers are presently being reused" (Mr. Dougherty).

RESPONSE: Recycling is gratifying, and Montanans for Deposit Legislation has collected and recycled over 20,000 cans in its recycling program. However, Mr. Dougherty overstates the case. Montana Recycling, the only recycler to accept steel cans in 1978, collected fewer than 1 million, or less than 1% of the market, not 25%. About 12 million of the 44 million beer bottles sold in 1978 (28%) were recovered, but 10.5 million of these were recovered through deposits of 85¢/case placed on them by distributors for tavern sales. Only about 1 million were collected by recyclers and distributors at the warehouse -- and no wonder: a customer has to accumulate about 10 cases to make driving them to an out-of-the-way collection point worth the $2.50 paid for them. (Montana Recycling collected about 500,000 beer bottles in 1978 from all its centers. The second largest recycler doesn't accept bottles. Helena's Western beer distributor reports a low customer return rate -- about 25 cases per week. A total recovery of 1 million of the 33 million throwaway beer bottles sold is probably a generous estimate). Mr. Dougherty's example shows how tremendously effective a deposit system (95% recovery) is as opposed to a recycling system by itself (3% recovery) for bottles.

(3) CLAIM: "Private industry is achieving such impressive retrieval of solid waste without cost to the consumer" (Mr. Dougherty).

RESPONSE: Recycling is generally subsidized by consumers right now through car delivery and time costs. That 30% of Montana's citizens are willing to lose money or barely break even in an effort to manage the litter and solid waste/energy problems created by throwaway beverage containers is more evidence that a uniform deposit system is needed to share the burden more equitably -- not that recycling by itself is solving the problem.

(4) CLAIM: "The major threat to the growth of voluntary recycling is the possibility of a forced deposit law" (Mr. Tippy).

RESPONSE: The three major threats to the growth of any kind of recycling in Montana are (a) the increasing share of non-recyclable beverage containers in the market, (b) the fact that only a certain percentage of Montana citizens are willing to subsidize recycling with their time and vehicles, and (c) prohibitively high rail freight rates for recyclables. Under a deposit law, incentives would shift to favor recyclable and refillable containers, and 90-95% of the aluminum cans would be recycled rather than today's 43% -- no small matter since aluminum is the only revenue-producing material for Montana's recyclers. The success of recycling centers in Oregon, Vermont, and Maine -- which recycle more per-capita than similar recycling operations in Arizona, Washington, and Montana -- testify to the fact that private recycling is not constrained by a deposit law. Montana's non-beverage industry recyclers, by an 8-5 margin, support deposit legislation as a means of saving private recycling in Montana.

(5) CLAIM: "Reynolds recycled the equivalent of about 55 percent of the aluminum cans it put in the marketplace in 1978" (Reynolds Metals Company).

RESPONSE: Reynolds is one of several large aluminum producers. Nationally, only 28% of the aluminum cans sold were collected for recycling, compared to 25% in 1973 -- despite 10 years of active promotion by the industry. Since the three deposit states were recycling aluminum cans at a 90% rate in 1978, the non-deposit state average is even lower than it was in 1973.

(6) CLAIM: "A voluntary (aluminum) return rate of 60%. . .is achievable without great difficulty" (Mr. Tippy).

RESPONSE: Mr. Tippy supplies no evidence to support his assertion that Montana can easily achieve what Arizona and Washington have failed to achieve despite their better markets and 8-10 years of experience. We're aware that Arizona's BIRP program claims recovery of 60% of Arizona's aluminum cans (as reported by the Legislative Council), but BIRP's own annual reports show a recovery of 15 million pounds in 1978 (370 million aluminum cans). In Arizona's 1978 container market of around 1.6 billion, this represents at best a 40-45% aluminum recovery rate. Even 60% recovery of aluminum cans alone ignores the large non-aluminum throwaway container share.

(7) CLAIM: "The arguments of saved resources (by a deposit system) are parochial, inadequate, and expensive. . ..Resource recovery is a clearly preferable strategy" (Mr. Dougherty).

RESPONSE: We've detailed in our position paper why deposit systems are perfectly compatible with resource recovery and why they can achieve levels of materials recycling not even the best hypothesized resource recovery plant can match. Mr. Dougherty's information is, to say the least, outdated and inapplicable to Montana. He first sets up a "straw man" deposit system consisting of 100% refillable bottles and no cans, showing the capital costs and none of the savings. He then compares it to a hypothesized resource recovery system (none yet exists in this form) for which he projects capital costs but no operating costs.. He cites no studies by name so that it's impossible to see what kind of system he's referring to. Even the 1972 cost figures he cites are dubious — resource recovery facilities have been hit with skyrocketing cost overruns and poor performance, even for simpler systems than Mr. Dougherty postulates.

Finally, the term "voluntary recycling", as used by Mr. Tippy and Mr. Dougherty, is a misnomer. Right now, 19% of the beverage containers sold in Montana carry 10¢+ direct deposits, and a convenient means of return through grocery stores is provided. Another 55% or so (aluminum cans, steel cans in a few areas of the state, and some Western throwaway beer bottles) carry a de facto deposit of roughly 1¢, for which the consumer is charged in the price of the container (though the word "deposit" is not used, the effect is the same), but no convenient means of return is provided. For the remaining 25% (steel, plastic, and most throwaway glass), the consumer is simply charged for the container, and no means of return at all is provided. A consumer who engages in "voluntary" recycling, then, is one who generally loses a little more money in car expenses and time to take the container to a recycling center or warehouse to receive a refund of 1¢ he/she already paid in the price of the container at the store.

ISSUE: THE EFFECT OF A DEPOSIT LAW ON CAN SALES

(1) CLAIM: "Reynolds. . .lost 90% of its can sales in Oregon under that state's deposit law" (Reynolds Metals Company).

RESPONSE: The reason for the decline in can sales had nothing to do with the deposit provision, but rather with two miscellaneous provisions in the Oregon law: (a) a ban on all pull-tab cans, which were the only kind available in 1972 except for a few of the older cans which require an opener, and (b) the certified bottle procedure, offering a low deposit for "standard" bottles. In deposit states without certification procedures, aluminum can sales have actually risen — from 5% of the Vermont market in 1973 to 30% today, for example. This is why Alcoa Aluminum no longer opposes "non-discriminatory" deposit laws similar to Vermont's (and Montana's proposed HB 2) and even sees them as a means to encourage beneficial aluminum recycling. Even in Oregon, can sales have risen to 15% of the market in 1978.

— Mike A. Males, for
Montanans for Deposit Legislation
6 October 1979

TO: Interim study on beverage and food containers 13 October 1979

FROM: Montanans for Deposit Legislation

GASOLINE CONSUMPTION UNDER A DEPOSIT SYSTEM

At the October 6 interim study hearing, Mr. Roger Tippy of the Montana Beer & Wine Wholesalers asserted a deposit law would cause a 47% increase in gasoline consumption by Montana beverage distributors. The only information Mr. Tippy has provided to document his assertion is a one-page memo from Pacific Coca-Cola Distributing which stated that Pacific's Oregon distributors used twice as much gasoline per 1,000 cases delivered as its Washington distributors. Mr. Tippy attributed this "definitely" to Oregon's deposit law.

Though our contact with the memo's signer, Mr. Ron Beerman (ironically enough) of Coca-Cola's Atlanta headquarters, indicated the Pacific study was a statewide comparison between Oregon and Washington -- and we concluded Oregon's much lower population density, not the deposit law, is the cause of Oregon's higher gasoline consumption -- we now have better information.

Last week I contacted Pacific Distributing, and they referred me to Mr. Joe Mayo of Pacific's Bellevue, Washington, office. Mr. Mayo said he believed the study matched the distribution routes in Oregon and Washington and that population density was not a factor. Mr. Mayo cited Oregon's container mix as the factor primarily responsible for its higher gasoline usage.

Mr. Mayo estimated that 75-80% of Pacific's Coca-Cola sales in Oregon are in refillable bottles, and the remainder in cans. He estimated that only 15-20% of Washington sales were in refillable bottles, with 60% in cans. Further, the refillable bottle which dominates the Oregon market is of the 16-oz size, while can sales in 1978 were in the 12-oz size.

Thus, the "average" case of Coca-Cola (24-count) sold in Oregon consisted of 19 16-oz refillable bottles and 5 12-oz cans. The average Washington case consisted of 4 16-oz refillable bottles, 4 12-oz throwaway bottles, and *16* 12-oz cans.

A 16-oz refillable Coke bottle weighs 34 ounces full and 18 ounces empty. A 12-oz can weighs 13 ounces full and 3/4 ounce empty. A 16-oz bottle stands 2½ times higher than a 12-oz can and therefore requires about 2½ times more trucking space.

Thus the "average" Oregon case of Coke delivers 20% more beverage than the average Washington case, but it requires 60% more trucking space and weighs 35% more in delivery. The difference between the two state's container mixes is more than adequate explanation for the 75% higher gasoline consumption per ounce of beverage delivered in Oregon.

Pacific's Oregon distributors consume more gasoline per case delivered because Oregon's market uses 4-5 times more 16-oz bottles than Washington's. To accept Mr. Tippy's argument that a deposit law will cause a 47% increase in distributors' gasoline consumption in Montana, it must be shown that a deposit law will cause a radical shift in Montana's container mix (currently 70% cans) toward larger refillable bottles. No evidence from the five states which now have active deposit laws even begins to support that assertion:

(1) The shift in the Oregon container mix -- from 50% refillable bottles before 1972 to 80% after, estimated by Mr. Mayo -- was not caused by its deposit requirement, but by another provision enacted simultaneously which banned all cans with detachable pull-tabs. Oregon was the first state to ban pull-tabs, and the can industry had no alternative type of can in 1972. Therefore, all cans disappeared from the Oregon market in 1972 and were replaced with bottles. By 1975 the can industry

RECEIVED

had designed a type of can which opens without detaching a pull-tab, and can sales in Oregon have now climbed back up to 20% of the market. A dozen states (including California) have now banned pull-tabs with no effect on can sales.

(2) Can sales in Vermont and Maine did not decrease following implementation of their deposit laws. Michigan beer can sales did fall from 70% of the market to 50%, but again this was due to a special provision in Michigan's law which offered the incentive of a lower deposit to bottlers who marketed a state-certified standard beer bottle, not the deposit requirement itself — as evidenced by the fact that Michigan soft drink can sales remained steady. No decline in can sales has been reported in Iowa. If a deposit requirement, by itself, is responsible for causing a shift from cans toward bottles, it should have caused such a shift in all the above deposit states — but it did not.

There is, in short, no evidence to support a belief that a deposit law in Montana will produce a radical shift toward bottles which would, in turn, cause an increase in distributor gasoline consumption for delivery. Nor would a vast amount of trucking space have to be reserved for refillable bottle returns. No one has even alleged, let alone produced evidence, that a non-discriminatory Montana deposit law would depress can sales.

Under a deposit law, experience shows that throwaway bottle sales decline sharply. The most conservative (ie, bottle-oriented) estimate based on the evidence is that a deposit law would replace Montana's current market of 70% cans, 19% returnable bottles, and 11% throwaway bottles, with an all-returnable market consisting of 65% cans and 35% bottles. The average case of Montana beverages now contains 17 cans, 4½ refillable bottles, and 2½ throwaway bottles, and weighs 412 ounces filled with a backhaul weight (returnable bottles only) of 72 ounces.

Under a deposit law, the average Montana case would consist of 16 cans and 8 refillable bottles, which would weigh 432 ounces — 5% more — with a backhaul weight of 112 ounces. In a 12,000-pound distributor's truck carrying 160 cases of cans and 80 cases of bottles, the weight difference (which can be correlated with gasoline consumption) would amount to 2% of the total haul weight (filled) and 3% (backhaul).

Further, if a deposit law caused a shift away from steel cans toward aluminum cans and a shift away from the heavier export-type refillable beer bottles toward the lighte Oregon or Michigan refillable beer bottles (the certified 11-oz Oregon bottle weighs 9 ounces empty, the Michigan 12-oz bottle weighs 8 ounces empty, the 12-oz export bottle 12 ounces empty, and the throwaway beer bottle 7 ounces empty), then an actual decline in the weight of an average case of beverages could occur.

Finally, the container mix under a deposit system would require about 5-10% more trucking space than under the current system due to the replacement of throwaway bottles with bulkier refillable bottles (a shift of 11% of the market) and backhaul. Some distributors may have to buy a whole new truck, while others will simply make more efficient use of existing space. Since the vast majority of distributor trucks today run with only one employee during the peak season, the alleged 26-35% more labor time neede to handle returned containers could be solved by adding an additional employee to some of the existing trucks, not adding more trucking, and by adjusting routes correspondingly (no, this doesn't mean leaving extra returned containers at grocery stores from summer to fall). It would take an extra employee far less time to handle and load all the returned containers at each stop than it now takes one employee to unload and price the delivered beverages — since Mr. Tippy has already charged a deposit system with 30% more trucking labor, we might as well get some work out of them.

The upshot is that added space requirements under a deposit system would add only about 2% to overall gasoline requirements — and that only if 20% of the route is assum to be "dead" miles between the warehouse and the first and last stops. Taken together, it's difficult to see how a deposit law's additional space, weight, and labor requirements could add more than 5% to the overall system's gasoline consumption, even using the above pessimistic assumptions.

- - - - - - - - - - -

There is little to rebut in the testimony of Worland or the Montana Food Distributors' Association (Mr. Tom Haines) that we haven't covered already. I do not accept the inference in both Buttrey Food Stores' and the Food Distributors' testimony that individual grocers are (in effect) guilty of criminal negligence for their failure to compel state health authorities to stop the sanitation problems allegedly caused by returned containers. Montana retailers now handle some 80 million returned containers each year, and not one retailer has ever exercised his or her right to complain to the appropriate state health officials or compel enforcement under mandamus — if, in fact, such a serious health problem does exist. Neither the individual grocers nor their state association has ever proposed legislation to restrict returnable containers. No state health official seems to believe a sanitation problem exists. No health problems have been reported in deposit states or Canada.

The real health hazard (ignoring the often-swapped scare stories about occasional worms in refillable bottles or, on the other hand, broken glass in throwaway bottles) is the several hundred thousand injuries caused each year by littered throwaway containers.

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I would like to propose one ground rule for the interim committee report: That no figure or statement be used unless the source can be clearly determined and is properly represented. If the often-stated problem of the committee is "who do you believe," then I think the committee should know *who* it is they're being *asked* to believe and *exactly* what is being said.

Any reading of the testimony and October 6 hearing statements will show, I believe, that in all cases where the source of a statement or figure could be determined, there was *not* that much disagreement as to the basic facts. Because Mr. Tippy stated to the committee, for example, that he excluded all collection costs in figuring disposal savings caused by a deposit law, the committee should not be in total confusion as to whether to accept his "$90,000" figure or our "$500,000" figure — the methodology is clear, and the committee can design its own approach. Detailing source and methodology is the only way to clear up confusion, and to the extent that was done, this interim committee may be able to clear up some of the confusing information which has plagued past legislatures considering deposit bills.

I believe we can document -- and in most cases produce the source document — for all of our figures and statements. A "source" is someone who has actual experience or has independently researched the topic being cited, not someone who is merely repeating a statement made by someone else.

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On the back is an article from the *Oregon Journal*, 11 October 1979, detailing a Michigan Department of Transportation study which showed an 82% decrease in beverage container litter, a 31% decrease in other types of litter, and an overall 41.5% decrease in all litter between 1978 and 1979. Michigan's deposit law took effect in December, 1978. This is the fourth deposit-law state in a row to report declines not only in beverage container litter of over 75%, but in *all* types of litter following implementation of deposits. It is getting more difficult to escape the conclusion that deposit laws act to reduce all types of litter, not just beverage containers.

Bottle law in Michigan shows success

LANSING, Mich. (UPI) — In the first year of Michigan's new bottle law, a roadside check by state officials has found a 41 percent drop in overall litter and a nearly 82 percent decrease in discarded beverage containers.

The results of the annual state Department of Transportation study, which looks at selected areas on state highways, were released Wednesday.

The study found a decline in overall litter between 1978 and 1979, which contrasted sharply with a steep increase recorded in 1978.

It also reported that a significant portion of the beverage containers found this year were throwaways brought in from other states.

Under Michigan's voter-approved bottle law, which took effect last December, deposits are required on beer and soft-drink containers.

The effectiveness of Michigan's deposit requirement in producing promised litter reductions is expected to be a key issue in other states considering similar measures.

"The people of Michigan not only have stopped a costly and wasteful trend, they seem to have reversed our plunge into a throwaway society — reducing both the number of bottles and cans thrown away and the volume of all roadside litter," said Gov. William G. Milliken, a staunch supporter of the law.

Transportation officials conduct a litter survey each August in test areas.

They found an average of 778.2 litter items per mile in 1977, 1,032.2 in 1978 and 603.6 in 1979. The 1979 total was down 41.5 percent from 1978.

They found an average of 133 beverage containers per mile in 1977 and 207 in 1978 and 37.5 in 1979. The 1979 total represents a decrease of 81.8 percent from 1978.

"The amount of total litter — minus beverage containers — rose from an average of 645.2 items per mile in 1977 to 825.2 per mile in 1978 and then dropped to 566.1 in 1979 — a reduction of 31.4 percent in just one year," Milliken said.

"Our experience in this year's survey underscores the need for a national beverage container deposit law," he said.

Milliken said 25.8 of the 37.5 beverage containers found per mile were throwaways brought in from other states.

APPENDIX E*

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*Appendix E contains correspondence received prior to December 2, 1979 by the Study Committee on Containers from deposit legislation proponents and opponents. The material is organized by the date it was written.

July 3, 1979 *

Bill Dimich, President
Montana Soft Drink Association
344 Howard Ave.
Billings, Montana 59102

Dear Bill:

Received the change notice for the July 16 meeting in Great Falls and have notified Ray Waters, the Great Falls Coors distributor who is our president this year. He and I both expect to attend.

The legislative study committee holds its first meeting the preceding Friday (July 13) here in Helena. I had a meeting with Mike Males last week to see if we could agree on any baseline statistics for the committee's use. We attempted to estimate total beer/soft drink sales in packages by type of package. I'm pretty sure about the beer totals but not at all about your industry when we guesstimate as follows:

CY 1978

	Beer	Soft Drink	% of total
Aluminum	160 million 72%	98 million 35%	52%
Bimetallic	16 million 8%	70 million 25%	17%
N/R Glass	33 million 15%	28 million 10%	12%
Ret. Glass	11 million 5%	84 million 30%	19%
Total packages	220 million	280 million	500 million

Please review these figures to see if they seem to have a plus-or-minus five per cent accuracy.

Sincerely,

Roger Tippy

RT/pr
cc: James M. Wylder
Don Harrington

---

* Copy retyped since original was too light.

Montana
Beer & Wine
Wholesalers
Association
Post Office Box 124 • Helena, Montana 59601 • Telephone (406) 442-4451

August 8, 1979

TO: Board members

FROM: Roger Tippy

SUBJECT: Wholesaler costs under deposit laws

I am working up figures for the legislative study on the costs of a deposit law to distributors. It is necessary to make certain assumptions about present productivity levels in order to put a price tag on a deposit system. I have gathered some information by telephoning several members of the association and could complete the task more inexpensively if you all would check these figures against your own operations.

1. Labor
A. It takes 2.9 man-years of work by delivery personnel (salesman, drivers, warehousemen) to distribute each 100,000 cases of beer. This is the equivalent of 8 men for a 270,000 cases a year business or 14 for a 480,000 cases/year operation.

B. The average annual compensation for delivery personnel is $17,000/year.

2. Trucks
A. It takes 1.5 route trucks to deliver 100,000 cases of beer per year.

B. A truck is depreciated over a five-year period.

C. Annual non-fuel operating costs for a truck (depreciation, repair, tires, insurance, etc.) come to around $7,500.

3. Fuel
A typical beer distributorship in Montana runs on about ~~30,000~~ 20,000 gallons of fuel per year.

If these figures are sound, they are factored into the total packaged beer sales in the state (1978) of 10.5 million cases and a multiplier of 1.3 to each of the above productive elements. (This last means it takes 30% more labor, 30% more trucks, and 30% more fuel to deliver the same quantity of beer, stopping at each account to pick up empties.)

ROGER TIPPY, Helena
Executive Secretary-Counsel

The result is that 50 beer distributors selling 10.5 million cases a year in Montana and picking up 9.5 million cases of empties would incur these costs:

More diesel or gasoline, 500,000 gallons more:	$450,000
50 more trucks to operate:	375,000
95 more man-years of labor needed:	1,545,000
Recycling equipment, space and labor at the warehouse ($~~25,000~~ 15,000 per distributor)	750,000 ~~1,250,000~~
	~~3,520,000~~ $ 3,120,000

This assumed no significant shift from aluminum to glass. If such a shift occurs as it did in Oregon circa 1974, the multiplier may go from 1.3 to 2.0, meaning twice as much labor, fuel, etc. is needed.

cc: Bill Dimich

P.S. Please bring comments on this to the Board meeting on the 14th. Roger

Schlitz Wholesalers Manual — cost info.

MONTANA RETAIL ASSOCIATION

GRANITE BLOCK • P. O. BOX 440 • HELENA, MONTANA 59601
SERVING THE TOTAL INTERESTS OF MONTANA RETAILERS

AREA CODE 406
442-3388

September 5, 1979

Mr. Jim Oppedahl
Legislative Council
Room 138
State Capitol Building
Helena, Mt 59601

Mr. Oppedahl:

Before leaving this office last week, Mr. Haubein left a notation to write you and advise that the Food Marketing Institute and Grocery Manufacturers of America had been unable to supply any information on the number of food containers sold in Montana in a year.

Sincerely,

Thelma D. McCarty

Thelma D. McCarty
Office Manager

SEP 6

Montana Beer & Wine Wholesalers Association
Post Office Box 124 • Helena, Montana 59601 • Telephone (406) 442-4451

September 27, 1979

Mr. Jim Oppedahl
Researcher
Montana Legislative Council
State Capitol
Helena, Montana 59601

Dear Jim:

I am enclosing copies of various documents on increased fuel consumption in mandatory deposit states. The first is a Coca-Cola Company memo of May 2, 1979. The second is a copy of a letter I sent on August 29, 1979, to Mr. Talmadge of Coca-Cola submitting an inquiry about the May 2 memo. Information subsequently received from Coca-Cola representatives indicates that the Washington and Oregon figures are for distribution in the metropolitan areas of Puget Sound (Seattle-Tacoma) and the Willamette Valley (Portland-Eugene). There are no significant factors other than the bottle bill in Oregon to influence the discrepancy in fuel consumption.

Next I enclose a letter of August 31, 1979, from the Maine Beer and Wine Wholesalers Association which bore out my hypothesis that all delivery elements increased by 30%.

Finally, I enclose what I hope will be a legible copy of a news item from the Michigan Daily Star dated August 14, 1979, entitled "Distributor Woods Closing Doors, Blames Bottle Bill" The story says Woods used 6,375 gallons of gasoline the first 6 months of this year compared to 5,427 gallons in the first half of 1978 while his sales in these months declined by factors of 37 to 51%.

Sincerely,

Roger Tippy

RT/pr
Enclosures

ROGER TIPPY, Helena
Executive Secretary/Counsel

135 140006 21 10 77

Enjoy
Coca-Cola
Trade mark ®

Mr. William C. Talmadge DEPARTMENT ______ LOCATION MAIL CODE ______
ROM Ron Beerman DEPARTMENT ______ LOCATION MAIL CODE ______
ATE May 2, 1979 SUBJECT Gasoline Consumption, Mandatory Deposit Legislation

Bill, your initial conclusion is correct. The Pacific Company's distribution operations in Oregon required exactly twice as much gasoline per packaged case delivered, as did that same company's distribution operations in the State of Washington. In fact, this company's soft drink distribution operations in Washington required 47.4 gallons of gasoline per 1,000 packaged cases sold, while in Oregon 94.9 gallons of gasoline per 1,000 packaged cases sold were required.

This is strong information, supported by hard numbers, documenting actual experience in 1978.

Additionally, if route distances, equipment capacities and conditions, etc., in these markets are assumed to be representative of the national average, and if these gasoline consumption figures are then applied on a national basis to total soft drink industry packaged case sales, it can be demonstrated that in 1978 national mandatory deposit legislation would have increased soft drink bottling companies' gasoline usage by about 127,000,000 gallons.

(94.9 gals.) - (47.4 gals.) = 47.5 gals. increase,
per 1,000 packaged cases sold

(47.5 gals. increase per 1,000 packaged cases)
X
(2,675,100,000 total soft drink industry packaged cases sold in 1978)

= 127,100,000 gallons increase

Bill, we are also compiling fuel usage figures for the Michigan Company, that we we will make available as soon as possible.

Ron Beerman

RJB/djl
Attachments

cc: Mr. H.R. Hiller, Jr.
Mr. Ovid R. Davis
Mr. E.T. Leonard, Jr.
Mr. C.K. Holmes, Jr.

August 29, 1979

William Talmadge
Public Affairs Department
The Coca-Cola Company
P. O. Drawer 1734
Atlanta, Georgia 30301

Dear Mr. Talmadge:

Thank you for the Washington-Oregon fuel consumption figures. Are these numbers statewide averages or do they reflect distribution areas of similar size and population? The reason I ask is that we figure fuel usage in Montana to run around 90 to 100 gallons per thousand cases delivered; as high as the Oregon figures. This raises the possibility that fuel consumption ratio vary with the population density of the state more then with the presence or absence of a deposit law. Thanking you again for your assistance I am

Sincerely,

Roger Tippy

RT/pr

The Coca-Cola Company
ATLANTA, GEORGIA

WILLIAM C. TALMADGE
PUBLIC AFFAIRS DEPARTMENT

ADDRESS REPLY TO
P. O DRAWER 1734
ATLANTA, GA. 30301
(404) 897-2121

September 17, 1979

Mr. Roger Tippy
Montana Beer & Wine Wholesalers Association
Post Office Box 124
Helena, Montana 59601

Dear Roger:

I appreciate very much your letter of August 29. The figures contained in our memorandum do not relate to statewide consumption. They reflect, rather, the gasoline consumed in the distribution operations of the Pacific Coca-Cola Bottling Company - which has routes in both Washington and Oregon.

The Planning Department of Coca-Cola USA which compiled these figures has indicated to me that there is no variable between the distribution routes in Oregon and Washington which would significantly effect gasoline consumption other than the presence of mandatory deposit legislation in Oregon.

Please don't hesitate to call on us again, Roger, if there is anything we can do to help you and the other concerned Montana citizens in your efforts to oppose this discriminatory legislation. With every good wish, I am

Sincerely,

William C. Talmadge

WCT:djl

Peter F. Briggs, President
Aroostook Beverage Co., Inc.
Jack Doherty, Vice-President
Valley Distributors Inc.
Steve Dougherty, Treasurer
Cumberland & York Distributors
Lawrence Dennis, Secretary
Dennis Beverage Co.
Kenneth P. MacLeod, Exec. Sec.
William E. Dennett, Consultant

M. B. & W. W. A.
Maine Beer and Wine Wholesalers
Association
MRB Box 382A Bangor, Maine 04401
(207) 942-6741
947-8528

August 31, 1979

Mr. Roger Tippy
Montana Beer and Wine Wholesalers Association
P. O. Box 124
Helena, Montana 59601

Dear Mr. Tippy:

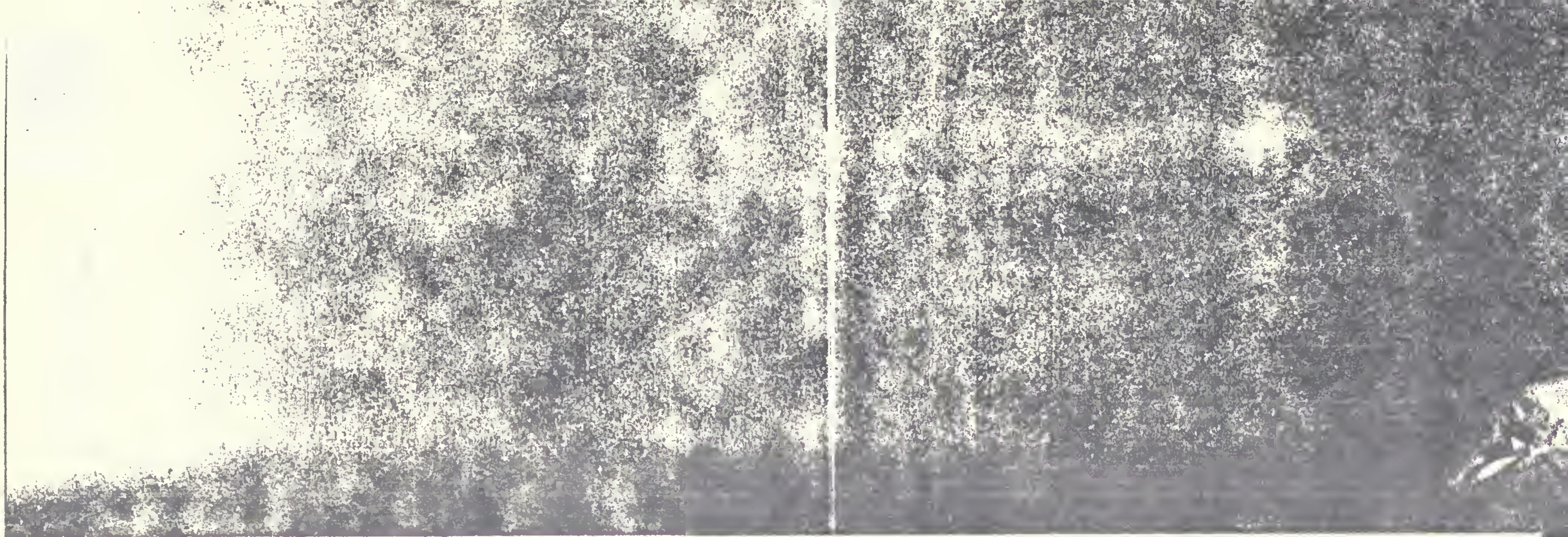
I have talked with several wholesalers in my Association as to what affect on distribution costs the passage of the Forced Deposit Law had on their business. The 30% figure you received from Michigan and the 30% figure used in your memo to your Board members seems to be right in the ballpark. Every wholesaler that I talked with ranged from 26% to 35%, coming out to about 30% on average. They claim that they require 30% more truck space and 30% more help to deliver the same amount of merchandise that they were delivering prior to passage of the Forced Deposit Law. In summary, it seems a good ballpark figure the distribution costs to the wholesaler go up about 30% with the passage of a Forced Deposit Bill. The bottom line, of course, is that the cost to the consumer goes up by at least this much.

I hope this information is helpful to you.

Sincerely,

Kenneth MacLeod
Kenneth P. MacLeod
Executive Secretary

cc.
Peter Briggs, President
P.O. Box 962
Presque Isle, Maine 04769



higan Daily
T......
ust 14, 1979

Distributor Woods closing doors, blames b

By PHIL
SCHERMERHORN
Staff Writer

"It's got me whipped. I'm getting out," said Joe Woods, owner and operator of Woods Beverage Company. "When we close the books Friday night, that'll be the end of Woods Beverage Company."

Joe is a beer distributor. His territory straddles the Michigan-Indiana stateline from New Buffalo on the west to Cass County on the east. "This bottle bill is killing us distributors along the stateline," lamented the last Niles distributor.

Sitting in the office of the 14,000-square foot warehouse he built three years ago, Joe reviewed sales figures since February.

"February, down 39 percent. March, down 37 percent. April, down 40 percent. May, down 41 percent. June, down 51 percent. Do you get the idea how my business is going?," Joe said.

And in addition to the plunge in sales, labor costs have gone up.

"Before (before the bottle bill) a truck would start out full. Now we have to leave several bays empty for empty bottles and cans that we must pick up," continued Joe.

"Now, we'll get a driver over in New Buffalo who runs out of beer. We either have to truck more beer to him or he has to return to Niles, load up and then drive back," Joe said. "We are using more gas and selling less beer."

According to the local distributor, his company used 5,427 gallons of gasoline during the first six months of 1978 to deliver beer. In comparison, 6,375 gallons of gasoline were used during the first six months of this year.

This increase in gasoline consumption is coupled with the increase cost spurred by the recent shortage.

But that's not the only additional expense created by the bottle bill. "I had to hire several extra people to sort cans, and take those cans to Stevensville to be crushed," Joe explained.

Although he is bitter about retiring from the distributing business, Joe shows no outward signs of those hard feelings, at least toward the people who buy beer.

"The price of beer is just so high people are drifting across the stateline into Indiana to save a couple of bucks. I can't blame them," he reasoned.

But it is hard for Joe to give up; Woods Beverage Company has been around since 1933 when Joe's father, J.W., started the business after prohibition. "I started in the spring of '42," remembered Joe. "That's 37 years ago."

Joe's father was the first distributor in southwest Michigan, and both J.W. and Joe watched the business grow from a small building on S. 11th Street to the larger, temperature-controlled warehouse on N. 13th Street.

Joe is going to miss his warehouse. You can tell by the way he speaks with pride of it.

"This was the first-temperature controlled building in the area. I took a week several years ago, and toured different warehouses throughout the state. I took a couple of ideas from each of these and built my warehouse.

It was built by Niles people. They did a good job and I got a good price. I don't think you could find a better building."

Joe, who is 55-years-old, does not blame his business' demise solely on the bottle bill that went into effective Dec. 3, 1978. "The rise of the drinking age back to 21 also hurt some," he said. "The bars nearer the stateline don't get the college crowd anymore."

The decision to step out of the distributing business was not a hasty one, commented Joe. "I spend the winters in Florida, and I decided to wait and see what the sales figures were for the first several months of this year. But with an average loss of 40 percent, I thought I should get out of the business while I could," he continued.

Although Joe's business has dropped off, he contends his organization is still a viable business. "We're a small distributor," Joe readily admits, "and we're still a viable business. However, I could have sold my business for a lot more before the bottle bill."

Bud Kerly Sales, Inc. of Stevensville will be taking over Woods Beverage Company as of 5 p.m. Friday. "Bud's a real gentleman. He bought everything. The beer, the trucks, the building and the office equipment," Joe said. "By Saturday, this building will be empty of everything except maybe a few pieces of office equipment."

Included in the sale is Joe's seven delivery trucks, two trailers and a semi. Also, Joe's route for 37 years for Stroh's, Goebel and Schoenling Beers.

As for Joe's employees. "Well, they have all been offered good jobs by Bud Kerly," said Joe. During the peak of business, Joe employed eight men, but recent retirements have lowered the number to six.

Will there be sort of a celebration Friday night when Woods Beverage Company closes out its books? "No, we may have a wake. A wake is more like it. Nothing's permanent," reflected Joe.

PEPSI

HARRINGTON BOTTLING COMPANY

1740 HOLMES AVENUE
BUTTE, MONTANA 5970
PHONE (406) 494-3200

September 28, 1979

OCT 3 1979

Jim Opedhal
Legislative Council
Montana State Capital
Helena, Montana 59601

Dear Jim:

The following are the present costs we are paying on glass bottles:

10 oz. NR	.077¢
10 oz. Returnable	.171¢
16 oz. Returnable	.219¢
32 oz. Returnable	.274¢

We are at about a 9 to 10 trip average on returnable glass-this will vary in bottle size and markets - due to tourist traffic, diet products versus regular products, etc.

Hope this is of some assistance in your study.

Yours truly,

Don Harrington

Don Harrington

DH:DS

"SERVING THE BIG SKY COUNTRY"

Montana Beer & Wine Wholesalers Association
Post Office Box 124 • Helena, Montana 59601 • Telephone (406) 442-4451

October 18, 1979

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Jim Oppedahl, Researcher
Montana Legislative Council
State Capitol
Helena, Montana 59601

Dear Jim:

On solid waste figures, Mike Males and I differ considerably on the tonnage of non-returnable glass beverage containers. This is how I derive my figure of ~~9,315~~ tons:
10,090 up 775

55 million bottles (by stipulation)
equals 2.3 million cases
1 case of N/R bottles weighs 9.75 pounds* 2.3 m cases weigh 22.425 m pounds which converts to 11,212 tons with a 10% return rate, the tonnage requiring solid waste disposal is 10,090 tons.

*Source: "Sense and Nonsense Regarding Aluminum," speech by John E. Blomquist, President of Reynolds Metals Co., p. 11. Mike is using a heavier weight for N/R glass, but I feel this figure is sound. There is no reason for an aluminum can maker to understate the weight of a competitive material when lightness is one of the aluminum man's selling points.

Sincerely,

Roger Tippy

RT/pr
cc: Mike Males

ROGER TIPPY, Helena
Executive Secretary/Counsel

tuate. As you can see—as of April 1—we see a metal input cost differential between our can stock and the most popular steel can stock specifications being at $2.65 per thousand cans.

In our steel can development work, we have documented the fact that the metal cost differential at many times during the cycle is more than offset by the increased production costs for steel cans as opposed to aluminum cans. The latest figures generated in our "test" shows the following cost increases for producing steel cans:

• Exterior materials	$1.25
• Interior materials	.42
• Labor	.41
• Variable Overhead	.34
• Fixed Cost	.54

This translates into $2.96 per thousand containers.

Certainly it's difficult to see steel taking up the slack, because as steel industry officials concede almost daily, ROI's in the industry are not what they should be. They are not generating adequate funds for modernization and expansion. It's our thinking that they're going to *have* to be improved . . . that they will undoubtedly have to increase prices.

We've found the quality of the decoration on steel is not as good as these aluminum cans with high speed ironers unless the can is given an opaque base coat to hide the surface blemishes, which appear normally during production of the tin plated steel can. This adds to the cost.

We further found both the interior and exterior of the steel can requires a more complete coating coverage to maintain the flavor of the product and to prevent rusting as compared to aluminum. This adds to the cost and increases the spoilage potential.

Gentlemen, we feel these factors—costs and the quality of the finished product—are the paramount causes for the dramatic growth in the aluminum can market.

But there are others. Our customers have also been able to realize very real transportation savings in using aluminum cans because of container weights. When comparing the pounds per 24 unit case—keeping the 12-ounce size constant—the returnable glass container itself weighs approximately 12 times more than an aluminum container. Obviously, it takes more fuel to carry more weight.

Also, further savings for our customers are achieved through the shipment of unbreakable cans because extra *protective* packaging or secondary packaging is virtually unnecessary.

Container Weights

	Pounds Per 24 Unit Case
12-oz. 2 Piece Aluminum Cans	**1.125**
12-oz. 2 Piece Steel	**1.875**
12-oz. 3 Piece Steel	**3.000**
12-oz. Non-Returnable Glass	**9.750**
12-oz. Returnable Glass (Michigan)	**13.070**

So, customer preference is obvious. But there's been another influence in the remarkable growth of the aluminum can to which we perhaps have not given due credit. The real hero who made it all happen was the American consumer. At every turn it was the consumer's preference for what the can had to offer that steered us in the right direction.

Research shows the consumer likes the convenience of the lightweight container. They like the container's integrity, that it won't rust and that the quality taste they want in their beverage is there, with no iron pickup. They like its quick-chilling attributes.

And, of course, consumers like the fact that the aluminum can is fully recyclable and has high scrap value.

I'm sure you've heard that Reynolds recycling again led the industry when in late February we announced a price increase to 20 cents a pound in our consumer program—up from 17 cents a pound. Others increased their prices in early March.

I gave you our recycling figures earlier in this presentation, but let me give you some benchmark figures from Reynolds to show you the outstanding consumer acceptance of this environmentally sound venture.

In 1970 we recycled just over four million pounds of aluminum cans. During August of 1978—in one month—we recycled 15.8 million pounds or almost four times the volume total of the entire year of 1970.

I said I wouldn't deal with the "nonsense" part of this title, but let me clear up one misconception. One report which came out in 1978 dealt with the hypothesis

Great Falls Coca-Cola Bottling Co.
933 38th Street North/Great Falls, Montana 59401
Phone (406) 761-3794

November 6, 1979

Mr. Jim Oppedahl, Researcher
Montana Legislative Council
State Capital
Helena, MT 59601

Dear Jim:

Thanks for your time meeting with me last Wednesday. I'm sure you would like the Interim Committee to schedule meetings during the week instead of Saturday. Here are some comments that I would like you to consider and make available to Committee members.

The two studies done of the Oregon experience which you quote from most extensively in your report are the Applied Decisions Systems Study and the study done by Professors Gudger and Bailes of Oregon State University. The general impression left seems to be that the Gudger and Bailes effort is in some way more reliable than the one compiled by Appled Decisions Systems. However, some background information will reveal that the opposit is the case.

In December, 1974 hearings were held by the Illinois Pollution Control Board. At that time, Mr. T. James Glauthier, of Applied Decisions Systems, offered testimony in which he replied to criticisms of the ADS Report which has been advanced earlier by Professors Gudger and Bailes. Professors Gudger and Bailes had applied to the State of Oregon for the contract to prepare the official report on the mandatory deposit law - the same contract which was subsequently awarded to ADS. Thus, at the time the original contract was awarded, the State of Oregon obviously regarded the ADS proposal as more reliable that the one suggested by Professors Gudger and Bailes. It was only after it became apparent that the ADS results were not as favorable to the Oregon bottle bill as were those of Professors Gudger and Bailes that its proponents switched horses in mid-stream and began to hail the Gudger and Bailes effort.

In his testimory, Mr. Glauthier indicated that he had spoken to Professor Gudger and confirmed the facts which he reported to the Illinois Pollution Control Board. Two primary areas were discussed - sales figures and the rate of bottle return. In each case, the information was gathered by questionnaires submitted to the bottlers.

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With regard to sales figures, the ADS questionnaire asked for detailed sales figures for each different sized refillable bottle, for each different non-refillable bottle, and for cans. Furthermore, it asked for that information on a month-by-month basis covering 25 months - the 13 months before the law, and the 12 months following it. As an example, a typical firm required more than 150 entries to complete the sales portion of the ADS questionnaire. Based on this exhaustive study, the ADS team came to the conclusion that total soft drink sales were essentially unchanged on an ounce basis after the law and declined approximately 4% on a units, or container basis.

In contrast, Professors Gudger and Bailes found that soft drink sales increased by 10% after the law. In their questionnaire they requested only two numbers from soft drink bottlers. These numbers formed the entire basis for their conclusion that sales had increased 10%. The sales information requested by the Gudger and Bailes questionnaire was restricted to the month before the passage of the law and the month after its enactment. Obviously, in any one month there is much random fluctuation in deliveries to stores based on such factors as the different number of business days in various months, promotions, weather, etc.

In the area of bottle return, the ADS analysis showed relatively stable return rates both before and after the law. The Gudger and Bailes report, however, concluded that return rates were lower before the law and improved dramatically after the law. As with sales figures, return rates fluctuate randomly from month to month. Once again, the Gudger and Bailes questionnaire asked for only the percentages returned in April, 1972 and 1973. It should be pointed out here that bottlers generally keep their records of returns in terms of percentages of current deliveries. One month's figures are not very useful, since they measure the return of last month's sales against this month's shipments. The ADS survey, in comparison, was based on the entire year after its enactment. Their month-by-month figures show that return rates varied from 78.8% in December, 1971 to 119.2% in January, 1972. This discrepancy indicates the huge margin of error involved in basing your figures on only one month's statistics as did Gudger and Bailes.

In his report, Mr. Males devotes a great deal of attention to the relative success enjoyed by the states of Oregon and Washington in cleaning up litter. It is interesting to note, that he concludes that "the most scientific study," of the relative success enjoyed by the two states in reducing litter was a survey done by the Oregon Journal. This survey was nothing more than a news story which was part of a journalistic debate on this subject conducted with several Washington newspapers. The surveys done by the Washington newspapers indicated that Washington was the cleaner of the two states.

On the other hand, Mr. Males has ignored a scientifically sound study done by the Institute of Applied Research, headed by Mr. Daniel Syrek. In fact, Mr. Males has very little nice to say about Mr. Syrek. At one point he refers to him as, "a researcher who wanted to show that beverage containers are only a small part of litter." He also refers to Mr. Syrek as "a frequent beverage industry consultant." Now let us examine this statement for a moment. The fact is that Mr. Syrek has a degree in industrial engineering from the University of California and 28 years of professional experience in collecting and analyzing data, design experiments and conducting research programs. The Institute for Applied Research has performed nine major studies, only one of which was funded by private industry. Why, then, does Mr. Syrek make Mr. Males so nervous? The answer is obvious. Because when Mr. Syrek compares litter in the states of Oregon and Washington, his conclusions are somewhat different than those arrived at by Oregon newspaper reporters. In point of fact, Mr. Syrek found that Washington has 52% less accumulated letter than Oregon in urban areas and 17% less accumulated litter than Oregon in rural areas. It is a small wonder that Mr. Males misses no opportunity to disparage Daniel Syrek.

An examination of Mr. Males research piece indicates that he could have done his homework somewhat better. For example, at page 10 he offers the following report on California's Model Anti-Litter Law. Quoting the Sacramento Bee Mr. Males indicates that the California Litter alternative was repealed. However, the fact of the matter is that the California law is alive and well. Only recently, the Governor signed into law A.B. 66 which, among other things, provides annual funding at a level of $14.7 million per year for the California law. Thus, the California law is a viable functioning entity and not the moribund corpse which Mr. Males portrays it to be.

At page 19 Mr. Males states, "the effectiveness of a deposit law in encouraging a higher return rate for recycling and refilling is not in dispute. Container return rates range from an average of 93% in Oregon to 97% in Vermont." While I hate to dispute that which Mr. Males cites as being indisputable, I would direct his attention to a study recently performed by the Franklin Institute on a set of mandatory deposit regulations which were tested for one year by the Department of Defense at ten separate military installations. In that experiment, the return rate was 83.7%, which is approximately 10% below the lowest rate quoted by Mr. Males. It is interesting to note that Mr. Males cities no statistical basis for his conclusion of the trippage figures currently enjoyed in deposit states. However, the number which I have just cited to you is the result of any extensive test done by the Franklin Institute at the military installations set out above.

At another point Mr. Males makes the following statement, "during the initial months of the law, beverage prices tend to rise as industry passes on change-over capital costs made before the law took effect. Within a few months, revenues from unclaimed deposits, recycling sales and lower bottlingcosts begin to accumulate so that general beverage prices fall back to or below pre-law level."

In light of that statement, it is interesting to note that information derived by the Marketing Division of Coca-Cola USA from data provided by the A.C. Nielsen Company indicates that in 1977, the 16 ounce returnable bottle was priced higher in Portland, Oregon than anywhere else in the country. For all returnable bottles, Portland had the highest prices in the country with the sole exception of New York City. For twelve ounce cans, Portland prices were higher than 90% of the markets around the country. Apparently, it is taking Oregon quite some time to "cool down" from the effects of forced deposit legislation.

In addition, Mr. Males on several occasions cites studies done by the Battelle Institute. In that connection, it is interesting to note that in a study which Battelle performed in June, 1978 they found that bottle bills encourage the use of refillable bottle systems, which consume slightly less total energy - but one-third more petroleum - than can systems. The study went on to state that a nationwide all refillable system would consume 11 trillion more BTUs of petroleum per year than would an all can system. Of course, this study was done for the Can Manufacturing Institute - hence, the emphasis on an all can system. But the basic fact remains that the increased transportation costs which would be generated by an all refillable system would consume substantially more petroleum in the distribution of our products. Battelle also estimated that conversion to an all refillable system would use up to an additional 8.5 million actual barrels of petroleum.

Dr. Elgin D. Salle, an environmental consultant for the American Can Company, has stated that most studies which attempt to measure the relative energy benefits of forced deposit legislation leave out several crucial factors including: the energy consumed returning empty refillables from the retailer to the bottler, the energy consumed in building the initial "float" of refillable bottles, the energy consumed producing all the equipment that will manufacture the returnable bottles, and the energy consumed producing the associated hardware necessary for the returnable system.

Proponents of mandatory deposit legislation are fond of blurring its adverse impact on gasoline consumption by converting all forms of energy into BTUs. Mr. Males has done that repeatedly in his statement. The problem with this logic is that most energy savings generated by mandatory deposit legislation occur because fewer containers are manufactured. Most container manufacturing either is, or can be coal-fired. Thus mandatory deposit bills reduce coal consumption, and increase petroleum consumption. Changing all forms of energy into BTUs ignores the fact that automobiles cannot be run on coal. Mr. Males indulges himself in this illogical reasoning process when he states than the energy saved by a bottle bill in Montana would be "enough energy to fuel 8,500 Montana cars for a year."

If there is more information I can help with, please let me know. I know you are getting swamped with submittals, but maybe there is some area which needs to be developed.

Very truly yours,

James M Wylder

James M. Wylder, President
GREAT FALLS COCA-COLA BOTTLING CO.

JMW:pb

Mr. Jim Oppedahl
Montana Legislative Council
State Capitol
Helena, MT 59601

23 November 1979

Dear Jim --

Thanks for sending me a copy of the comments of Mr. James M. Wylder, president of Coca-Cola Bottling Company in Great Falls, regarding the interim study on container problems. My response to his comments follows.

Mr. Wylder is correct that the Applied Decisions Systems (ADS) study and the Oregon State University study take two different approaches to evaluate the economics of Oregon's deposit law. I'm baffled, however, as to why Mr. Wylder takes such great pains to defend the exhaustive approach of the ADS study and then ignores its conclusions.

The ADS study concluded that soft drink prices declined 5% after implementation of Oregon's deposit law. Mr. Wylder ignores this and asserts -- without presenting any evidence whatsoever -- that Oregon's deposit law is responsible for the 1977 price of one brand of soft drink sold in Portland. Since the Department of Commerce's Consumer Price Index has consistently shown Portland, Oregon, to be among the five most expensive cities to live in in the United States -- for housing, auto ownership, food, and other selected commodities -- it seems very unfair of Mr. Wylder to pick on beverage prices. In any case, price surveys done by the Seattle Times during October, 1979, found Oregon and Washington beverage prices comparable even though Washington has a lower beer excise tax and four local breweries.

The ADS study also found, after implementation of Oregon's deposit law, the return rate for beer bottles increased to an average of 94.5% of those sold, while soft drink bottle return rates were 95.9% of those sold (cans comprised a small part of Oregon's market then, but a 1979 estimate by the Department of Environmental Quality based on unclaimed deposits puts the can return rate at 85%). Mr. Wylder -- incredibly, given his ringing defense of the ADS methodology in determining return rates -- ignores this conclusion and instead insists on a much lower return rate projection based on a Franklin Institute study of military bases.

Mr. Wylder's citation of the Franklin Institute study is a simple misapplication of data. We contacted Mr. William Franklin, the study's author, during the legislature, and Mr. Franklin told us it would be completely invalid to attempt to extrapolate data from his military base study to apply to a whole state. Given that a high percentage of military commissary sales are to off-base personnel who have no means of convenient container return, given that the deposit experiment only lasted one year, and given that the military generally mishandled the experiment, a return rate of 83.7% is remarkably good.

Mr. Wylder states that I cite "no statistical basis" for my estimate of return rates in Oregon, Vermont, and Maine. Very well; the estimated Oregon return rate is based on the ADS figures cited above and averages 93% for both bottles and cans. The Vermont return rate is based on a compilation done by its Department of Environmental Conservation from beverage distributors. The Maine return rate is based on a conservative conversion of glass and aluminum/steel recycling figures for beverage containers reported by the state's recycling industry. In each case the return rate is well over 90%, but if Mr. Wylder wants to argue for 80% or 85% or whatever, in the absence of citations for his judgment, it's not an earth-shattering issue.

Mr. Wylder criticizes me for ignoring Daniel Syrek's litter study despite Mr. Syrek's allegedly eminent qualifications. Well, the reasons I have little regard for Mr.

Syrek are threefold: (1) of the fifteen studies on litter I've seen, Mr. Syrek's is the only one that found beverage containers were only 3% of all litter -- about ten times lower than most of the other studies found. (2) Mr. Syrek has an unsettling habit of making broad and arbitrary adjustments to his litter data -- in his comparative study of Washington and Oregon, Mr. Syrek actually found that most of the comparable sites he surveyed in Oregon were cleaner than those in Washington. But, using a series of questionable "adjustments" to the data, Mr. Syrek succeeded in making Washington the cleaner of the two states on paper, even if Oregon was cleaner on the highway. (3) When a researcher comes to radically different conclusions from his peers in such a manner, you may conclude that another motivating factor is present. In Mr. Syrek's case, I believe that motivating factor is the funding he received from American Can Company -- a staunch opponent of deposit laws -- for his comparative study of Oregon and Washington.

Mr. Wylder quotes a 1978 Battelle study to the effect that while deposit laws may save overall energy, they waste petroleum. Battelle's study is problematic because it didn't examine the real world; only a highly improbable 100% refillable bottle system compared to a 100% can system, at the behest of its can industry client, and no such system exists or is likely to ever exist. I believe the evidence from Maine, Vermont, and Iowa amply proves that a deposit law will not reduce the can share of the market under a non-discriminatory deposit system. If I were advocating a discriminatory deposit system for Montana -- which I am not -- then it could be argued that can sales would go down.

BTU's (British Thermal Units, a universal measure of energy) are a lot more interchangeable than Mr. Wylder admits. Mr. Wylder acknowledges that deposit laws save electricity, and he might have added, natural gas. Both of these energy sources can be used as replacements for fuel oil in home and business space heating. About 25% of the electricity generated in the U.S. is generated from oil. Thus, conserving electricity and natural gas makes more oil available for the transportation sector, as well as saving a great deal of money. Finally, as noted, all of the studies which don't compare fantasy systems conclude that deposit systems also save petroleum directly -- it takes a lot of oil and gasoline to keep on mining and importing bauxite, steel, and silica sand instead of re-using what we've already got.

Mr. Wylder approvingly cites a report by Dr. Elgin D. Salle of American Can Company (doesn't Mr. Wylder have any sources of information other than those vehemently opposed to deposit laws?) on deposits and energy. Dr. Salle's arguments, and those of the many energy studies Mr. Wylder ignores, are well-discussed in the Massachusetts study sent out by the Legislative Council, as well as by the Office of Technology Assessment study cited in our report.

Still, I thank Mr. Wylder for his refreshing specificity and candidness about the anti-deposit law sources of the information he cites. I only wish he had presented his criticisms of my study at the October 6 hearing, where we could have had more time to go over them.

Thanks for your work on this study, Jim, and please continue to keep me posted. And stay away from meetings during the holiday!

sincerely, Mike A. Males

Mike A. Males
Montanans for Deposit Legislation
P.O. Box 1013
Helena, Montana 59601

MONTANA
RECYCLING
INC.

STEEL CAN RECYCLING

Location	Starting Date
Missoula*	10-20-78
Bozeman	10-03-78
Billings*	02-06-79
Butte	08-09-79

Great Falls does not purchase steel cans. Program not probable in future.

* Steel cans have been purchased through these centers since October 15, 1971. Particular brands recycled were Lucky, Olympia 7 oz. and 12 oz. Currently, all steel beverage cans are recycled.

The centers above purchase steel cans from the following locations: Libby, Ronan, Hot Springs, Helena, Kalispell, Glendive, Sidney and Miles City.

806 West Spruce
Missoula, Montana 59801
(406) 721-1120

APPENDIX F*

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*Appendix F contains a bill recommended by the Study Committee on Containers to prohibit the sale of certain types of containers in Montana.

__________ BILL NO. ______

INTRODUCED BY ____

BY REQUEST OF THE STUDY COMMITTEE ON CONTAINER DEPOSITS

A BILL FOR AN ACT ENTITLED: "AN ACT TO PROHIBIT THE SALE OF CERTAIN TYPES OF CONTAINERS."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MONTANA:

Section 1. Definitions. As used in [section 2], the following definitions apply:

(1) "Beverage" means beer or other malt beverage, mineral water, soda water, tea, or carbonated soft drink in liquid form and intended for human consumption.

(2) "Container" means an individual, separate, sealed metal can containing a beverage.

Section 2. Detachable opening prohibited. No person may sell or offer for sale at retail in this state any metal beverage container so designed and constructed that a part of the container is detachable when opening the container.

Section 3. Violations -- penalty. A violation of [section 2] is a misdemeanor and is punishable as provided in 46-18-212. Each day on which a violation occurs is a separate offense.

-End-